JOPLIN CITY COUNCIL
WORK SESSION
MONDAY, MARCH 11, 2024
5TH FLOOR COUNCIL CHAMBERS
602 S. MAIN ST.
5:45 P.M.

Notice is hereby given that the City Council of the City of Joplin, Missouri, will hold a work session beginning at 5:45 p.m. on Monday, March 11, 2024, in the 5th Floor Council Chambers, 602 S. Main Street to discuss the topics below. This meeting can be view via livestream at http://www.joplinmo.org/182/Video-Multimedia

AGENDA

1. Broadband Internet Service Provider Agreement Discussion
2. TEConomy
3. Presentation of Critical Illness Program for the Fire Department

Notice posted at 12:00 pm on this 7th day of March 2024. (RSMo 610.020)

The City of Joplin is committed to comply with the Americans Disability Act. The Joplin City Council Chambers is wheelchair accessible. Request for reasonable special accommodations must be made 48 hours prior to the meeting. Please email the City Clerk's office at hnagy@joplinmo.org or call (417) 624-0820 ext. 1220 for assistance.

Ad Omnia Parata

Broadband Deployment Status Update

City of Joplin



March 11, 2024

Agenda

1 | General Overview

2 | Focus Areas

3 | Project Scope

4 | Technical Requirements

5 | ALLO Fiber & City Responsibilities

6 | Questions



General Overview | Increasing Connectivity Across Joplin

The City of Joplin has formally released and received responses to its solicitation for a partnership to implement a citywide fiber optic network and improve connectivity.

Phase I

Build Joplin's Fiber Deployment Strategy

Develop an **actionable** plan which guides the City towards strategic and Joplin-centric broadband deployment including:

- Local Insights & Priorities
- Grant Funding Strategy
- Legal & Regulatory Risks
- Draft and Publish Request for Proposal (RFP)/RFI

Phase II

Solicit Market for Partnership

Approach the broadband market **aggressively and effectively** to secure partnership to further progress the City's connectivity goals.

- Conduct Interviews
- Conduct Negotiations
- **Reach a Partnership Agreement**

Phase III

Deploy Broadband

Upon the City **reaching a partnership agreement**, successful deployment of broadband includes:

- Broadband deployment program management
- Performance monitoring & reporting to prepare competitive grant applications
- Continuous community engagement

Strategy → Optimization → Performance

Focus Areas for Greatest Joplin Impact

Across the entirety of the City of Joplin's solicitation for a citywide fiber optic network, key focus areas were continually incorporated into the review process.

Deployment Schedule

Deployment schedule adhering to governing timelines (i.e., ARPA)

Resilience

Incorporate features to deliver a resilient and redundant citywide fiber optic network

Affordable Connectivity Program

Adherence to ACP and/or other low-income programs

Mileage Projections

Maximize coverage across the City of Joplin



Aerial vs. Buried

Maximize buried infrastructure to promote resilience

Guaranteed Service

Pass every home, business, and institution in the City of Joplin

Business Model

Strong partnership to deliver sustainable infrastructure

Maturity of Business

World class reputation and customer service

Smart Cities

Further the City of Joplin as a testbed for Smart technologies

Project Scope

The presented Development Agreement serves to contractually define the construction of a citywide fiber optic network that will provide high-quality, fiber optic broadband to residents and businesses in City of Joplin.

The "Project" means the construction of a fiber optic network (the "Network") that is able to offer **high-quality, fiber optic broadband to substantially all residents, anchor institutions, and businesses in the City** that are accessible using public rights-of-way and similar public easements, ways and extension and additions thereto (collectively, "ROW"). The Network facilities shall be owned and operated by ISP and located within the corporate limits of the City

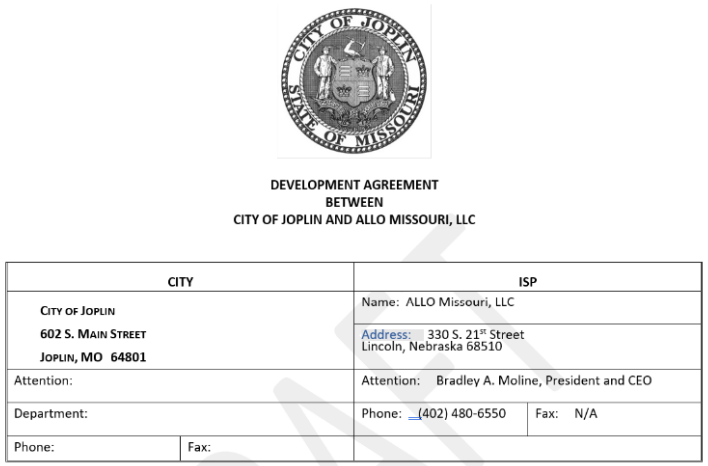


Selected Partner	Period of Performance	City Contribution	Expenditure Deadline*
ALLO Fiber	**24 months**	**$4,050,000**	**August 31, 2026**

** City of Joplin requirement*

Development Agreement & Right of Way Agreement

ALLO Fiber and the City of Joplin will agree on the construction of the citywide fiber optic network based on two governing documents; Development Agreement and Right-of-Way Agreement.



DEVELOPMENT AGREEMENT
BETWEEN
CITY OF JOPLIN AND ALLO MISSOURI, LLC

CITY		ISP	
CITY OF JOPLIN 602 S. MAIN STREET JOPLIN, MO 64801		Name: ALLO Missouri, LLC	
		Address: 330 S. 21st Street Lincoln, Nebraska 68510	
Attention:		Attention: Bradley A. Moline, President and CEO	
Department:		Phone: (402) 480-6550	Fax: N/A
Phone:	Fax:		

Development Agreement

Defines the partnership between ALLO Fiber and the City of Joplin including:

- Partnership Responsibilities
- Technical Requirements
- Project Scope
- City Contributions & Payment Requirements
- Legal Requirements
- Terms and Conditions

Right-of-Way Agreement

Defines ALLO Fiber's construction of the fiber optic network including:

- Density Limits for Construction (i.e., number of homes per road mile)
- Insurance Limits
- Disputes Procedures

Technical Requirements

The City of Joplin has diligently worked with ALLO to define critical technical requirements included in this Development Agreement as identified below.

Network will use XGS-PON electronics technology capable of delivering up to 10-gigabit service for residents and businesses	ALLO Fiber will adhere to national standards related to fiber construction & fiber electronics
Network infrastructure composition will consist of a minimum of 30% buried fiber*	ALLO Fiber will promote public safety & notification, adhere to City's complaint management expectations, and comply with underground utilities & impediments locating practices
Aerial fiber construction to be achieve with pole attachment agreements to the maximum extent feasible.	ALLO will seek prior approval should new additional poles be required for construction
All permits, ROW authority, & easements necessary will be obtained from the appropriate government entity for public rights-of-way.	ALLO Fiber will adhere to traffic management protocols, City's right to inspection, and restoration of construction areas.

** All buried fiber must be located inside conduit with locating wire at a minimum depth of 36 inches below street level*

Technical Requirements

ALLO Fiber will adhere to all City requirements related to construction of the Network including:

During Construction

- **Apply** for all necessary permits;
- **Maintain** compliance with applicable Missouri 811 laws;
- **Utilize** adequate barricades, guards and warning signs, lights or devices consistent with the requirements contained in the Manual on Uniform Traffic Control Devices shall be provided by ALLO Fiber during construction;
- **Notify** the public for scheduled construction;
- **Comply** with safety rules for routing traffic around construction zones;
- **Comply** with rules associated with maintaining a neat worksite and mitigating mud and runoff;
- **Inspect** work site before, during, or after construction, as required;
- **Maintain** complaint logs including written description of the process by which the public may notify ALLO Fiber about damage caused during Network construction.

Post Construction

- **Return** construction areas to the condition present before construction
- **Provide** a copy of final construction drawings to the City in an electronic format to be agreed upon by the parties.

City of Joplin Responsibilities

The City of Joplin, as a partner in this infrastructure project, holds contractual responsibilities which will contribute to the overall success of the citywide fiber network construction process including:

- ✓ Data Transparency
- ✓ Process Efficiency
- ✓ Timeliness

Payment

The City shall **pay all Eligible Expenses** in accordance with the proposed ALLO Development Agreement ($4,050,000)

Permit Reviews & Approvals

The City will provide efficient, documented permitting process for ALLO Fiber including **requirements**, **cost breakdown**, **and expected turnaround time** for approval.

Siting of Central Offices

The City will strive to **provide locations on City-owned or controlled land** for the placement of ALLO Fiber's Central Offices and fiber distribution cabinets including construction laydown area.

Access to Data

The City will m**ake all GIS data, parcel data, and data concerning the location of other utilities available to ISP.** The City will provide:

- updated list of addresses of residents, business, and anchor institution locations
- contact information for homeowner associations, private developers, or any other entities that ISP may need to coordinate with during construction

ALLO Fiber Responsibilities | Resilience

The City of Joplin will contribute $4,050,000 to deliver a resilient fiber optic network. ALLO Fiber will have until August 31, 2026 to submit Reimbursement Requests for Eligible Expenses in accordance with federal guidelines.



Redundant Network Design

- Diverse backhaul circuits into the City through two Central Offices (each a “CO”) within the City with a diverse fiber optic ring between the Cos to:
  - Increase reliability of services to the residents and businesses in the City
  - Protect City against technical issues or natural disasters
  - Provide services to service area, institutions, or businesses with redundant fiber connections to both COs.

Note: Each CO will be equipped with battery backup and a backup generator to ensure operation during power events.



Connect all Anchor Institutions

A fiber drop to the City’s anchor institutions will be installed to add additional security and protection of their connections.

ALLO Fiber Responsibilities | Resilience

The City of Joplin will contribute $4,050,000 to deliver a resilient fiber optic network. ALLO Fiber will have until August 31, 2026 to submit Reimbursement Requests for Eligible Expenses in accordance with federal guidelines.



Buried Mainline Fiber *

Mainline Fiber will be buried to ensure the main backbone of the Network is protected. Prior to construction, the ALLO Fiber will reasonably coordinate with the City to identify Mainline Fiber routes and will identify in a final construction map the Mainline Fiber routes that will be buried prior to construction permits being issued.



Actively Maintained Disaster Recovery Plan

Deliver and maintain a disaster recovery plan and will test the disaster recovery plan with City officials present a minimum of twice per year and report the results of the test to the City. The disaster recovery plan will include a description of the storage of spare electronics and fiber needed to restore the network after an outage.

* Mainline Fiber" means primary and backbone fiber optic cables that form the core of the Network.

ALLO Fiber Responsibilities | Low-Income Plans & Rates

ALLO Fiber will deliver cost-effective strategies for connecting the City of Joplin's residents, businesses, and institutions through programming and collaboration.

ACP or Alternative Low-Income Programs

ALLO Fiber will offer discounted broadband option for low-income households, which may be satisfied by ALLO Fiber's participation in the FCC's Affordable Connectivity Program ("ACP Plan") or any successor plan. To the extent that the ACP Plan is no longer functioning, ALLO Fiber will coordinate with the City to develop a low-income plan and agrees to make commercially reasonable best efforts to provide discounted broadband to qualifying households in the City.



3-years Rate Freeze

ALLO Fiber will commit to not increase prices and fees for its 1 Gig residential broadband service tier for a period of 36 months following the date this Agreement is executed.

ALLO Fiber Responsibilities | Customer Service

ALLO Fiber will deliver world class customer service to the City of Joplin's residents and businesses. Under this contractual agreement, ALLO Fiber will provide the following aspects during construction and operation of the Network

Written description **of process used to log problems** reported by customers and confirmation of all **resolutions**

Operational customer service line and **online services** that are substantially similar to ALLO Fiber's customer service practices in existing markets to meet the needs of the City's citizens



Name and contact information for the local **ALLO Fiber primary point** of contact and will keep the City updated should the contact person change

Local business office open to the public and will maintain **regular business hours**

ALLO Fiber Responsibilities | Construction Schedule

ALLO Fiber and the City of Joplin have discussed the importance of a construction schedule to meet federal funding timelines and City expectations.



2-year Construction Schedule

ALLO Fiber agrees to make its commercially reasonable best effort to meet the construction schedule

ARPA Reporting Requirements

To the extent that the City contributes funding derived from the American Rescue Plan Act of 2021 (“ARPA”) to fund construction of the Network, ALLO Fiber will adhere with applicable ARPA rules and reporting requirements

Questions?

DEVELOPMENT AGREEMENT
BETWEEN
CITY OF JOPLIN AND ALLO MISSOURI, LLC

CITY		**ISP**	
CITY OF JOPLIN **602 S. MAIN STREET** **JOPLIN, MO 64801**		Name: ALLO Missouri, LLC Address: 330 S. 21st Street Lincoln, Nebraska 68510	
Attention:		Attention: Bradley A. Moline, President and CEO	
Department:		Phone: (402) 480-6550	Fax: N/A
Phone:	Fax:		

WHEREAS, the City has identified significant broadband gaps and desired improved broadband connectivity and

WHEREAS, ALLO Missouri, LLC ("ISP") has been selected by the City of Joplin, Missouri (the "City") through an RFP process to construct a fiber optic network intended to pass all homes, anchor institutions, and businesses in the City (the "Project''). This Agreement, along with the separately executed Cable Franchise Agreement (attached hereto as Exhibit A), shall govern the relationship between the two parties related to the construction and operation of the fiber network.

WHEREAS, the City and ISP expect the Project (as defined herein), when operational, to provide significant socio-economic and community benefits to the City over time; and

WHEREAS, to develop the Project, ISP will incur significant costs, including costs for items that are for a public purpose and will benefit the City; and

WHEREAS, the City and ISP enter into this Development Agreement (the "Agreement"), whereby ISP agrees to fund, develop, and build the Project and the City agrees to provide certain concessions, including reimbursement of certain fees and expenses, that will make it easier and more affordable for ISP to construct the Project.

THIS DEVELOPMENT AGREEMENT is made and entered into this ____ day of _____, 20____, by the parties identified above.

The City and ISP agree to the following:

1. **The Project**. The "Project" means the construction of a fiber optic network (the "Network") that is able to

offer high-quality, fiber optic broadband to substantially all residents, anchor institutions, and businesses in the City that are accessible using public rights-of-way and similar public easements, ways and extension and additions thereto (collectively, "ROW"). The Network facilities shall be owned and operated by ISP and located within the corporate limits of the City, as detailed in Attachment A (the "Project Area").

2. **Period of Performance.** The ISP will make commercially reasonable best efforts to construct and Substantially Complete the Network within 24 months, commencing on the date the first Network construction permit is duly issued by the City to ISP. The ISP will have until August 31, 2026, to seek reimbursement for Eligible Expenses funded with City funds outlined in this Agreement and must provide ample documentation and verification of expenses before reimbursements will be initiated. "Substantially Complete" or "Substantial Completion" means the date, as reasonably determined by ISP, that the Network is capable (but for lack of a fiber drop) of providing broadband services to substantially all passings in the City. "Passing" means a physical location (residence, business, or government entity) within the Project Area that ISP is capable of serving from its Network within ROW using a drop. ISP shall provide written notice of Substantial Completion to the City and shall provide reasonable supporting evidence to demonstrate the Network is Substantially Compete.

3. **ISP Responsibilities**. ISP agrees to the following list of responsibilities and deliverables:
   - ISP will construct a fiber optic network intended to pass every home, anchor institution, and business identified in the map on Attachment B, subject to the density requirements included in the Cable Franchise Agreement. Exceptions will be made for locations where the ISP is unable to obtain legal access using ROW.
   - ISP will offer discounted broadband option for low-income households, which may be satisfied by ISP's participation in the FCC's Affordable Connectivity Program ("ACP Plan") or any successor plan. To the extent that the ACP Plan is no longer functioning, ISP will coordinate with the City to develop a low-income plan and agrees to make commercially reasonable best efforts to provide discounted broadband to qualifying households in the City.
   - ISP will operate a customer service line and online services that are substantially similar to ISP's customer service practices in existing markets to meet the needs of the City's citizens. In addition, the ISP will operate a local business office that will be open to the public, and will maintain regular business hours.
   - ISP will provide the name and contact information for the local ISP primary point of contact and will keep the City updated should the contact person change.
   - ISP agrees to make its commercially reasonable best effort to meet the construction schedule included in Attachment B.
   - To the extent that the City contributes funding derived from the American Rescue Plan Act of 2021 ("ARPA") to fund construction of the Network, ISP shall adhere with applicable ARPA rules and reporting requirements as detailed in Attachment C.
   - ISP will have diverse backhaul circuits into the City and will place two Central Offices (each a "CO") within the City. Each CO will serve approximately half the city. ISP will install a diverse fiber optic ring between the COs. These enhancements will greatly increase reliability of services to the residents and businesses in the City. If one goes CO down due to technical issues or natural disasters, the second CO will continue to operate providing services to its service area (approximately half the City) as well as any institutions or businesses with redundant fiber connections to both COs. Each CO will be equipped with battery backup and a backup generator to ensure operation during power events.
   - ISP will maintain a disaster recovery plan. ISP's current Disaster Recovery Plan is included as Attachment D. ISP will test the disaster recovery plan with City officials present a minimum of twice per year and report the results of the test to the City. The disaster recovery plan will include a description of the storage of spare electronics and fiber needed to restore the network after an outage.
   - ISP will construct the Network in accordance with its current processes and procedures and prevailing industry standards as they are in effect from time to time. However, ISP will reasonably

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cooperate with the City to ensure that at least some of the early construction is within low to moderate income neighborhoods.

- ISP will provide a written description of its processes used to log problems reported by customers and a description of how ISP confirms all problems are addressed and resolved.
- ISP will commit to not increase prices and fees for its 1 Gig residential broadband service tier for a period of 36 months following the date this Agreement is executed.

4. **Technical Requirements**. The Network will meet the following technical requirements.
   - ISP will initially utilize XGS-PON electronics technology that is capable of delivering up to 10-gigabits of upload and download speed to residents and businesses.
   - The Network will consist of a minimum of 30% buried fiber, with the percentage measured in terms of route miles.
   - Buried fiber must be located inside of a conduit that includes a locating wire or is otherwise discoverable by the locating equipment used to identify buried utilities. All conduit must be buried to a depth of at least 36 inches below street level unless alternate depths are agreed upon by City permit or allowed by applicable law. Notwithstanding the foregoing, fiber drops shall not be subject to the burial depth requirements found herein.
   - For aerial fiber construction, ISP shall execute a pole attachment agreement with the pole owner(s) in the City to the extent such agreement is required by the applicable pole owner. Copies of the executed pole attachment agreement(s) shall be provided to the City before starting any make-ready or fiber construction on poles. If the ISP requires additional poles to be installed to meet the Network's final design, the ISP will seek approval from the City prior to installing the new poles, and the City's approval shall not be unreasonably withheld, conditioned, or delayed.
   - ISP shall obtain all permits, ROW authority, and easements from the appropriate government entity for public rights-of-way necessary to Substantially Complete the Network. These may include, but are not limited to, all authorities having jurisdiction (local, state, and federal), railroad crossings, water crossings, wetland crossings, and road crossings. IPS shall use commercially reasonable efforts to obtain private right-of-way, private easements, and other rights of access with private parties required for the construction of the Network. Upon request, the, ISP will provide the City with electronic copies of the aforementioned documents for inclusion in the project records and archives.
   - ISP shall adhere to national standards related to fiber construction and fiber electronics as each are applicable and in effect from time to time, including:
     - National Electrical Code, NFPA 70
     - ANSI/TIA/EIA Standards
     - Fiber Optic Test Standards, TIA/EIA-526
     - Customer-owned Outside Plant. ANSI/TIA/EIA-758
     - National Electric Safety Code
   - ISP shall follow applicable State and local requirements for the safe locating of existing underground utilities and other impediments.
   - ISP shall allow for inspection by the City of the construction process to make sure that the Network meets the design specifications outlined in this Agreement.
   - ISP shall adhere to all City requirements related to construction of the Network including:
     - Applying for all necessary permits;
     - Maintaining compliance with applicable Missouri 811 laws;
     - The ISP agrees that during construction of the Network, adequate barricades, guards and warning signs, lights or devices consistent with the requirements contained in the Manual on Uniform Traffic Control Devices shall be provided by ISP during construction;
     - Notification to the public for scheduled construction;
     - Safety rules for routing traffic around construction zones;
     - Rules associated with maintaining a neat worksite and mitigating mud and runoff;
     - Inspection of work site before, during, or after construction, as required;
     - To the extent possible, return construction areas to the condition present before construction.
   - ISP shall strive at all times to construct the Network in a manner that is safe for the public and for

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contractors working on the Network.

- ISP shall maintain a log of all complaints from residents related to the construction process. The log should include the resolution of the complaint. Upon request, ISP shall share the log with the City during the Network construction process.
- ISP shall provide a written description of the process by which the public may notify ISP about damage caused during Network construction. This process of logging problems from the public and resolving each issue is included in Attachment E.
- ISP shall provide a copy of final construction drawings to the City in an electronic format to be agreed upon by the parties.

5. Responsibilities of the City. The City shall make its best efforts to remove barriers that may delay the construction of the Network, and will reasonably cooperate with ISP to remove such barriers as they are identified. The City agrees to work with ISP to clear administrative hurdles as they occur during the construction process by taking steps including, but not limited to, the following:

- The City shall pay all Eligible Expenses in accordance with this Agreement;
- City will review and approve construction in ROW; City permits shall not be required for ISP's drops;
- City will offer an efficient, documented permitting process that describes the needed detail to be provided by ISP, the cost, and the expected turnaround time to approve permit requests;
- City will strive to provide locations on City-owned or controlled land for the placement of the ISP COs and fiber distribution cabinets. City shall provide a location for ISP to store fiber and other construction materials during the construction process;
- City will make all GIS data, parcel data, and data concerning the location of other utilities available to ISP. Such data will be provided in GIS format (e.g., geodatabase (.gdb) or shapefiles (.shp)) when possible. City will keep ISP informed of changes from other utilities during the construction process;
- City will provide updated list of addresses of residents, business, and anchor institution locations when requested by ISP;
- City will provide contact information for homeowner associations, private developers, or any other entities that ISP may need to coordinate with during construction;
- City will provide sufficient staff to be able to meet its permitting and locating obligations in a timely manner and at a reasonable nominal cost to the ISP.

6. City Contribution; Reimbursement. The City shall contribute up to $4,050,000 to the ISP's construction of the Network in the form of cash reimbursement to the ISP ("Aggregate City Reimbursement") toward the following construction requirements, which are designed to benefit the City by adding additional resiliency features to the Network:

a. Construction of an additional and redundant Central Office to allow for redundancy of the Network in the event the primary Central Office is unable to serve the Network. The location of such Central Office is to be mutually agreed upon by the ISP and the City prior to the construction of the Network.

b. A fiber drop to the City's anchor institutions (each, an "Anchor Institution" collectively, the "Anchor Institutions") will be installed to add additional security and protection of their connections. The Anchor Institutions are listed on Attachment [E] of this Agreement.

c. Mainline Fiber will be buried to ensure the main backbone of the Network is protected. "Mainline Fiber" means primary and backbone fiber optic cables that form the core of the Network. Prior to construction, the ISP will reasonably coordinate with the City to identify Mainline Fiber routes, and will identify in a final construction map the Mainline Fiber routes that will be buried prior to construction permits being issued.

d. The activities undertaken by ISP in accordance with Section 6.a, 6.b, and 6.c are collectively referred to as the "Reimbursable Activities". All costs and expenses for materials, labor, subcontractor costs and expenses, permitting expense charged by entities other than the City, and all other costs and expenses which are related to, or arise from, the Reimbursable Activities shall be collectively referred to as the "Eligible Expenses."

e. The ISP will have until August 31, 2026 to submit Reimbursement Requests for Eligible Expenses in accordance with the procedures in this Section 6.e. Commencing after any Eligible Expenses have been incurred by ISP, ISP shall have the right to periodically submit requests for reimbursement

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(each, a "Reimbursement Request") to the City. Reimbursement Requests shall not be submitted more frequently than monthly and collectively shall not exceed the Aggregate City Reimbursement. Each Reimbursement Request shall be accompanied by cost breakdowns for Eligible Expenses. Upon receipt of a Reimbursement Request, the City shall promptly review the Reimbursement Request and shall promptly inform ISP of any disputes relating to the applicable Reimbursement Request. The City shall pay all undisputed amounts associated with Reimbursement Requests within thirty (30) calendar days of its receipt of the applicable Reimbursement Request. All disputes associated with Reimbursement Request shall be resolved by ISP and City in accordance with Section 33 of this Agreement. If the City fails to pay any amounts detailed within a Reimbursement Request and such Reimbursement Request is not disputed by the City within fourteen (14) calendar days of receipt of the applicable Reimbursement Request, then, in addition to any other remedies at law or equity, ISP shall have the right to offset unpaid amounts of Reimbursement Requests on a dollar for dollar basis against any fees payable to the City under the Cable Franchise Agreement.

7. **Working Relationship Between ISP and City**.
   - The City and ISP will work together after signing this Agreement to develop a reporting process for the parties to regularly communicate on the Project.
   - ISP agrees to regularly report to City Council on the progress of the Project.

   Each party shall designate a specific single point of contact for all correspondence between the two parties, along with alternate contact if the primary contact is not available.

8. **Insurance Requirements**. Without limiting any of the other obligations or liabilities of the ISP, the ISP shall secure and maintain at its own cost and expense, throughout the duration of this Agreement and until the work is Substantially Complete, insurance in accordance with this Section 8. After Substantial Completion, ISP shall maintain insurance in accordance with the Cable Franchise Agreement. The form and limits of such insurance, together with the underwriter thereof in each case, are subject to approval by the City of Joplin. Regardless of such approval, it shall be the responsibility of the ISP to maintain adequate insurance coverage during the term of the Agreement. Failure of the ISP to maintain coverage shall not relieve it of any contractual responsibility or obligation or liability in general or under the Contract Documents.

The certificates of insurance, including evidence of the required endorsements hereunder or the policies, shall be filed with the City within ten (10) days after the date of the receipt of Notice of Award of the Contract to the ISP and prior to the start of work. All insurance policies shall require that the insurance company in question provide thirty (30) days written notice prior to modification or cancellation of such insurance. Such notices shall be mailed, certified mail, return receipt requested, to:

City of Joplin - Public Works, 602 S. Main Street, Joplin, MO 64801

Such policies shall name the City as an additional insured, with limits of liability not less than the sovereign immunity limits for Missouri public entities calculated by the Missouri Department of Insurance as of January 1 each calendar year and published annually in the Missouri Register pursuant to Section 537.610, RSMo. (See, http://insurance.mo.gov/industry/sovimmunity.php)

As of January 1, 2023, the minimum coverage for the insurance referred to herein shall be as set out below:

a. **Workers' Compensation….** Statutory coverage per RSMo 287.010 et seq

   Employer's Liability……. $1,000,000.00

b. Commercial General Liability Insurance, including coverage for Premises, Operations, Products and Completed Operations, Contractual Liability, Broad Form Property Damage, Independent ISPs, Explosion, Collapse,

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and Underground Property Damage and endorsed for blasting if blasting required. Such coverage shall apply to bodily injury and property damage on an "Occurrence Form Basis" with limits of at least $3,370,137.00 for all claims arising out of a single accident or occurrence and at least $505,520.00 with respect to injuries and/or death of any one person in a single occurrence and an amount not less than at least $1,000,000 for all claims to property arising out of a single occurrence and at least $100,000 to any one owner with respect to damages to property. ISP agrees that the proceeds of such insurance policy shall first be used to pay any award, damages, costs, and/or attorneys' fees incurred by or assessed against City, its employees, officers and agents, before payment of any award, damages, costs or attorneys' fees of ISP, its employees, officers or agents. ISP agrees to cause its insurer to name City as an additional insured on such insurance policy, including the City as an additional insured for coverage under its products-completed operations hazard, and said policy shall be primary and noncontributory.

c. Automobile Liability Insurance covering bodily injury and property damage for owned, non-owned and hired vehicles, with limits of at least $3,370,137.00 for all claims arising out of a single accident or occurrence and at least $505,520.00 with respect to injuries and/or death of any one person in a single accident or occurrence.

d. Owner's and ISP's Protective Liability Insurance to protect the City, its agents, servants and employees from claims which may arise from the performance of this Contract, with limits of at least Three Million Two Hundred Fifty Eight Thousand Three Hundred Sixty Eight and no/100 Dollars ($3,258,368.00) for all claims arising out of a single accident or occurrence and at Four Hundred Eighty Eight Thousand Seven Hundred Fifty Five and no/100 Dollars ($488,755.00) with respect to injuries and/or death of any one person in a single accident or occurrence.

The Owner's and ISP's Protective Liability Insurance must:

(1) Be a separate policy with the named insured being: The City of Joplin, and

(2) Contain an endorsement that disclaims coverage for any claim barred by the doctrines of sovereign immunity or official immunity, except attorney's fees and other litigation costs incurred in defending a claim. Nothing contained in this policy (or this endorsement thereto) shall constitute any waiver of whatever kind of these defenses or sovereign immunity or official immunity for any monetary amount whatsoever.

f. Subcontracts. The ISP shall require subcontractors performing construction work related to the Project to maintain all insurance required in subparagraphs (a), (b) and (c) hereof and in like amounts.

g. Notice. The ISP and/or subcontractor shall furnish the City prior to beginning the work, the policy as specified in subparagraph (d), and satisfactory proof of carriage of all the insurance required by this Agreement, with the provision that policies shall not be canceled or non-renewed without thirty (30) days written notice to the City of Joplin.

h. Legislative or Judicial Changes. In the event the scope or extent of the City's tort liability as a governmental entity as described in Section 537.600 through 537.650 RSMo is broadened or increased during the term of this Agreement by legislative or judicial action, the City may require ISP, upon 30 days written notice, to execute an addendum to this Agreement whereby the ISP agrees to provide, at a price not exceeding ISP's actual increased premium cost, additional liability insurance coverage as the City may require to protect the City from increased tort liability exposure as the result of such legislative or judicial action. Any such additional insurance coverage shall be evidenced by an appropriate certificate of insurance and shall take effect within the time set forth in the addendum.

9. Certification Regarding Disbarment, Eligibility, Indictments, Convictions or Civil Judgements for all Federal Aid Projects: By signing and submitting the bid, the authorized official of the bidder, under penalty of perjury under the laws of the USA, shall certify that, except as noted in the exceptions, the company or any person associated therewith in the capacity of owner, partner, director, officer, principal investor, project director, manager, auditor or any position involving the administration of federal funds:

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a. Is not currently under suspension, debarment, voluntary exclusion or determination of ineligibility by any federal agency.
b. Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three years.
c. Does not have a proposed debarment or suspension pending.
d. Has not been indicted, convicted or had a civil judgment rendered against any of the listed parties by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

9.1 If there are any exceptions, the bidder shall submit the exceptions on company letterhead, signed by the bidder and inserted inside the bid submitted. Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, the bidder shall indicate to whom it applies, the initiating agency, and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

9.2 By signing the Agreement, the ISP shall further certify that all related subcontracts of $25,000 shall comply with the requirements of this Section 9.

10. ISP's responsibility for subcontractors. The ISP shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as ISP is for the acts and omissions of persons it directly employs. ISP shall cause appropriate provisions to be inserted in all subcontract agreements relating to this work, to bind all subcontractors to ISP by all applicable terms herein set forth, and insofar as applicable to the work of subcontractors and to give ISP not less than the same power regarding termination of any subcontract as the City may exercise over ISP under any provisions of this Agreement. Nothing contained in this Agreement shall create any contractual relation between a subcontractor and the City.

11. General Independent Contractor Clause. This Agreement does not create an employee/employer relationship between the parties. It is the parties' intention that the ISP will be an independent contractor and not the City's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri Revenue and Taxation laws, Missouri Workers' Compensation and Unemployment Insurance laws. The ISP will retain sole and absolute discretion in the judgment of the manner and means of carrying out the ISP's activities and responsibilities hereunder. The ISP agrees that it is a separate and independent enterprise from the City, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This Agreement shall not be construed as creating any joint employment relationship between the ISP and the City, and the City will not be liable for any obligation incurred by the ISP, including but not limited to unpaid minimum wages and/or overtime premiums (it being understood and acknowledged by the City that the foregoing shall not restrict ISP's right to seek reimbursement for Eligible Expenses).

12. Reserved.

13. Termination; Default.

a. A Default under this Agreement shall occur if: (1) a party materially breaches this Agreement (2) such breach is not excused by any provision of this Agreement; and (3) such breach continues un-remedied for a period of thirty (30) calendar days following receipt of written notice from the non-breaching party. If the breach by its nature cannot be cured within thirty (30) calendar days, and the breaching party within that time has diligently commenced a cure that is satisfactory to the non-breaching Party, there shall be no Default as long as the Party diligently continues such cure to completion as soon as possible, and in no event exceeding sixty (60) calendar days of the original Notice of Default. Without limiting the foregoing the following shall also constitute a Default: (4) a series of non-material or persistent breaches by ISP that, in the aggregate, have a material and significant adverse impact on the services to, or the support and operational management of, the Network; or (5) ISP becomes insolvent, is unable to pay its debts, enters into or files a petition,

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arrangement, application, action or other proceeding seeking relief or protection under the bankruptcy laws of the United States, or is the subject of any such proceeding initiated by another party and such proceeding is not discharged and/or dismissed within ninety (90) days of the filing date.

b. Upon the occurrence of a Default, the non-breaching party shall have the right, subject to any express limitations contained in this Agreement, to immediately terminate this Agreement and/or suspend performance under this Agreement. Unless otherwise stated in this Agreement, nothing in this Agreement shall preclude either Party from also pursuing other available remedies, including, but not limited to, damages, injunctive relief, and costs (including reasonable attorneys' fees).

14. Liability and Indemnity.

a. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, INCIDENTAL, INDIRECT, PUNITIVE OR CONSEQUENTIAL DAMAGES, WHETHER FORESEEABLE OR NOT, INCLUDING WITHOUT LIMITATION AS APPLICABLE, ECONOMIC LOSS OR LOST BUSINESS OR PROFITS, INTERRUPTIONS OF SERVICE, OR ANY DELAY, ERROR OR LOSS OF DATA OR INFORMATION, ARISING IN ANY MANNER OUT OF, OR IN CONNECTION WITH, THIS AGREEMENT AND A PARTY'S PERFORMANCE OR NONPERFORMANCE OF ITS OBLIGATIONS UNDER THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT OR TORT (INCLUDING STRICT LIABILITY), ALL CLAIMS FOR WHICH ARE HEREBY SPECIFICALLY WAIVED. THE MAXIMUM AGGREGATE LIABILITY OF ISP FOR ANY AND ALL CLAIMS ARISING FROM, OR RELATING TO, THIS AGREEMENT, SHALL NOT EXCEED THE LESSER OF (1) THE FEES PAID AND OWED TO ISP UNDER THIS AGREEMENT; OR (2) $4,050,000. The foregoing limitations of liability shall not apply to claims arising from or relating to a party's gross negligence or willful misconduct.

b. Except as provided herein, each Party and subject to Section 14.a, on behalf of itself and its affiliates, directors, officers, employees, agents, successors, and assigns ("Indemnitor") agrees to indemnify, defend, protect and hold the other Party and its directors, officers, directors, employees, agents, successors, and assigns ("Indemnitee") harmless from and against any claims, suits, actions or damages brought or asserted by a third party of any kind or character (collectively "Claims") and from and against any liability, losses, fines, judgments, costs and expenses (including reasonable attorney, accountant and expert fees) arising out of any Claims (collectively, "Losses") incurred by any Indemnitee (a) because of the death of any person, or any injuries or damage received or sustained by any persons or property, which in whole or in part arises on account of the negligent acts, errors, or omissions or willful misconduct of the Indemnitor in the performance of its obligations or exercise of its rights under this Agreement, including any material violation by Indemnitor of any law or permit applicable thereto; (b) under the Workers' Compensation laws asserted by any other person providing goods or services for or on behalf of any of the foregoing in connection with this Agreement; or (c) arising out of, caused by, related to, or based upon, a contractual or other relationship between such claiming party and the Indemnitor. The Indemnitor shall defend the Indemnitee in any proceeding alleging the third party claims listed above, at Indemnitor's sole cost and expense. The Indemnitor will have the option to select and provide legal counsel for that defense. If Indemnitee wants additional counsel of its choosing, the costs and expenses of the additional counsel will be Indemnitee's responsibility, and Indemnitor will have no obligation to pay additional counsel. Indemnitor's counsel will lead, direct and manage the litigation, and will ensure Indemnitee's additional counsel receives adequate information to monitor the litigation.

c. The ISP shall indemnify and hold the City harmless from all wages or overtime compensation due any of ISP's employees in rendering services pursuant to this agreement or any subcontract, including payment of reasonable attorneys' fees and costs in the defense of any claim made under the Fair Labor Standards Act, the Missouri Prevailing Wage Law or any other federal or state law.

c. The indemnification obligations of ISP hereunder shall not be limited by any limitations as to the amount or type of damages, compensation or benefits payable by or for the ISP, under any federal or state law, to any person asserting the claim against City, its elected or appointed officials, agents and employees, for which indemnification is sought.

d. The indemnification obligations herein shall not negate, abridge or reduce in any way any additional indemnification rights of the City, its elected or appointed officials, agents and employees, which are otherwise available under statute, or in law or equity.

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e. The ISP shall indemnify and hold the City harmless for any penalties, fines, fees or costs, including costs of defense, which are charged or assessed by any Federal, state or local agency including, but not limited to, Environmental Protection Agency or Department of Natural Resources directly caused by ISP's gross negligence or willful misconduct.

15. Force Majeure Events. Notwithstanding any other provision of this Agreement, neither party shall be responsible to the other party, or for any loss or damage, resulting from any event or circumstance beyond the reasonable control of the Party, including but not limited to an earthquake, hurricane, fire, flood, lightning, sinkhole or other forces of nature, acts of war, terrorism (including cyberterrorism), or civil unrest, strikes, lockouts or other labor unrest, unforeseeable inflation or supply chain issues, pandemics or legal order, government action or application of laws, regulations or codes (each a, "Force Majeure Event"). A party whose performance is impacted by a Force Majeure Event shall provide reasonable notice to the other party and shall make commercially reasonable efforts to minimize the impact of the Force Majeure Event on its performance. The deadline by when a party must perform an obligation under this Agreement, shall be postponed by the period of time by which the party's ability to perform that obligation is materially prevented or interfered with by a Force Majeure Event.

16. Confidentiality. The City agrees to keep confidential any and all Confidential Information, to the fullest extent permitted by law. In the event a public records request is made for Confidential Information and/or documents designated as confidential or proprietary, the City shall notify ISP as soon as possible. For all purposes of this Agreement, the term "Confidential Information" shall collectively refer to all non-public information or material disclosed or provided by one party to the other either orally or in writing including without limitation: (a) business plans, strategies, forecasts, projects and analyses, (b), financial information and fee structures, (c) business processes, methods and models, (d) employee information, (e) specifications, (f) manufacturing, purchasing, logistics, sales, technical, product and marketing information, and (g) customer information or personal data.

17. Contract Documents. The Contract Documents shall consist of the following and are incorporated by reference as part of the Agreement:

- **a.** Reserved.
- **b.** All Change Orders
- **c.** Bid Plans and Specifications
- **d.** City of Joplin Standard Specifications (Latest Revised Edition)
- **e.** Special Conditions & Provisions
- **f.** Proposal
- **g.** Statement of Bidder's Qualifications
- **h.** Acknowledgment
- **i.** Instructions to Bidders
- **l.** Non-collusion Affidavit
- **m.** Notice to Proceed

18. Hierarchy of Documents. In the event of a conflict between the Contract Documents, this Agreement, and the Franchise Agreement, the order of precedence set forth below shall control:

a. Franchise Agreement
b. This Agreement
c. The Contract Documents

19. Conflict of Interest. In accepting this contract, ISP certifies that no member or officer of its firm or corporation is an officer or employee of the City of Joplin, Missouri, or any of its boards or agencies, and further that no officer or employee of the City has any financial interest, direct or indirect, in this contract. All applicable federal regulations and provisions of R.S.Mo. Section 105.450 et seq. shall not be violated.

20. Assignment. Except as provided for in this Section 20, ISP shall not assign any interest in this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of the City

thereto, such consent not to be unreasonably withheld, conditioned, or delayed. No such consent shall be required for: (a) a transfer in trust, by mortgage, by other hypothecation, or by assignment of any rights, title, or interest of this Agreement or Network to secure indebtedness; or (b) an assignment or transfer to corporation, partnership, or other legal entity controlling, controlled by or under common control of the ISP, or to any successor to the ISP by purchase, merger, consolidation or reorganization. Any such assignment is expressly subject to all rights and remedies of the City under this agreement, including the right to change or delete activities from the Agreement or to terminate the same as provided herein.

21. Nondiscrimination. The ISP agrees in the performance of this contract not to discriminate on the ground or because of race, creed, color, national origin or ancestry, sex, religion, handicap, age, status as a protected veteran or status as a qualified individual with a disability, or political opinion or affiliation, against any employee of ISP or applicant for employment and shall include a similar provision in all subcontracts let or awarded hereunder. The parties hereby incorporate the requirements of 41 C.F.R. §§ 60-1.4(a)(7), 29 C.F.R. Part 471, Appendix A to Subpart A, 41 C.F.R. § 60-300.5(a)ii and 41 C.F.R. § 60-741.5(a), if applicable.

a. This ISP and its subcontractors shall abide by the requirements of 41 C.F.R. § 60-300.5(a). This regulation prohibits discriminations against qualified protected veterans and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified protected veterans.

b. This ISP and its subcontractors shall abide by the requirements of 41 C.F.R. § 60-741.5(a). This regulation prohibits discrimination against qualified individuals on the basis of disability and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified individuals with disabilities.

22. Nonresident/Foreign Corporation. ISP shall procure and maintain during the life of this contract:

a. If the ISP is a foreign corporation, a certificate of authority to transact business in the State of Missouri from the Secretary of State, unless exempt pursuant to the provisions of Section 351.570 R.S.Mo.

b. A certificate from the Missouri Director of Revenue evidencing compliance with the transient employer financial assurance law, unless exempt pursuant to the provisions of Section 285.230 RSMo.

23. Notices. All notices required or permitted hereinunder and required to be in writing may be given first class mail addressed to City and ISP at the addresses shown above. The date of delivery of any notice given by mail shall be the earlier of the date falling on the second full day after the day of its mailing or the date or receipt (as demonstrated by a return receipt or similar documentation).

24. Records and Audits. The ISP shall maintain accounts and records, including personnel, property, and financial records, adequate to identify and account for all costs pertaining to the Agreement and such other records as may be deemed necessary by the City to assure proper accounting for all project funds. These records will be made available for audit purposes to the City or any authorized representative and will be retained for three years after Substantial Completion.

25. Authorized Employees. ISP acknowledges that Section285.530, RSMo, prohibits any business entity or employer from knowingly employing, hiring for employment, or continuing to employ an unauthorized alien to perform work within the State of Missouri. ISP therefore covenants that is not knowingly in violation of subsection 1 or Section 285.530, RSMo, and that it will not knowingly employ, hire for employment, or continue to employ any unauthorized aliens to perform work on the Project, and that its employees are lawfully to work in the United States.

26. Interest of Members of a City. No member of the governing body of the City and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the planning and carrying out of the Project, shall have any personal financial interest, direct or indirect, in this Agreement, and the ISP shall take appropriate steps to ensure compliance.

27. Affidavit for Contracts Over $5,000.00. That pursuant to Missouri Revised Statute Sections 285.525 through 285.550, if this contract exceeds the amount of $5,000.00 and ISP is associated with a business entity, ISP shall provide an acceptable notarized affidavit stating that the associated business entity is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services, and that

said business entity does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. Additionally, ISP must provide documentation for said business entity evidencing current enrollment in a federal work authorization program.

28. City Benefits. ISP shall not be entitled to any of the benefits established for the employees of the City nor be covered by the Worker's Compensation Program of the City.

29. Occupational License: The ISP shall obtain and maintain an occupational license with the City of Joplin, Missouri, if required by city code and any required state or federal license. The cost for this occupational license shall be borne by the ISP. No contract will be executed by the City until this occupational license has been obtained and the ISP is current on any City taxes is verified.

30. Compliance with Laws. ISP agrees to comply with applicable federal, state and local laws or rules and regulations applicable to the provision of services and products hereunder. ISP affirmatively states that payment of all local, state, and federal taxes and assessments owed by ISP is current.

31. Entire Agreement. This Agreement contains the entire agreement of the parties related to the subject matter hereto. No modification, amendment, or waiver of any of the provisions of this agreement shall be effective unless in writing signed by authorized representatives of each party.

32. Dispute Resolution. Except for an action seeking a temporary restraining order or an injunction or to compel compliance with this dispute resolution procedure, or any scenario where a party may be prejudiced by following the dispute resolution procedure (*e.g*., expiration of the statute of limitations) the parties shall have the right to invoke the dispute resolution procedures in this Section at any time to resolve a controversy, claim, or breach arising under this Agreement. Each party shall bear its own costs for dispute resolution activity. At either party's written request, each party shall designate knowledgeable, responsible, senior representatives to meet and negotiate in good faith to resolve a dispute. The representatives shall have discretion to decide the format, frequency, duration, and conclusion of these discussions. The parties shall conduct any meeting in-person or via conference call, as reasonably appropriate within thirty (30) calendar days of the initial notice of dispute. If thirty (30) calendar days after the first in-person meeting of the senior representatives, the parties have not resolved the dispute to their mutual satisfaction, each party shall designate executive representatives at the director level or above to meet and negotiate in good faith to resolve the dispute. To facilitate the negotiations, the parties may agree in writing to use mediation or another alternative dispute resolution procedure. In the case of a dispute over a payment, either party may seek to use non-binding mediation. The parties shall mutually agree on a qualified mediator, no later than fourteen (14) calendar days after a party submits a written request for mediation to the other party. Mediation shall take place in Joplin, Missouri. Arrangements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof. If after sixty (60) days from the first executive-level, in-person meeting, the parties have not resolved the dispute to their mutual satisfaction either party may invoke any legal means available to resolve the dispute. Unless the parties otherwise agree in writing, communication between the Parties under this Section shall be treated as confidential information developed for settlement purposes, exempt from discovery, and inadmissible in litigation. During any dispute resolution procedure or lawsuit, the Parties shall continue providing services to each other and performing their obligations under this Agreement that are not subject to any dispute.

33. Jurisdiction. This Agreement and every question arising hereunder shall be construed or determined according to the laws of the State of Missouri. Should any part of this agreement be adjudicated, venue shall be proper only in the Circuit Court of Jasper County, Missouri.

34. Attachments. The following Attachments are attached hereto and incorporated into this Agreement by reference.

Attachment A – Project Area

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Attachment B – Network Construction Schedule
Attachment C – Government Funding Requirements
Attachment D – Disaster Recovery Plan
Attachment E – Customer Service Matters
Attachment F – Form of Franchise Agreement [if not executed with this Agreement]
[Attachment G – Section 17 Contract Documents]

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year herein stated.

Title:

_____

CERTIFICATE OF DIRECTOR OF FINANCE

I certify that the expenditure contemplated by this document is within the purpose of the appropriation to which it is to be charged and that there is an unencumbered balance of appropriated and available funds to pay therefor.

CITY OF JOPLIN, MISSOURI

By: _____
Nicholas Edwards, City Manager

_____
_____
Leslie Haase, Director of Finance

APPROVED AS TO FORM

_____
_____
Peter Edwards, City Attorney

ISP: ALLO Missouri, LLC

By:

_____

_

Printed Name:

_____

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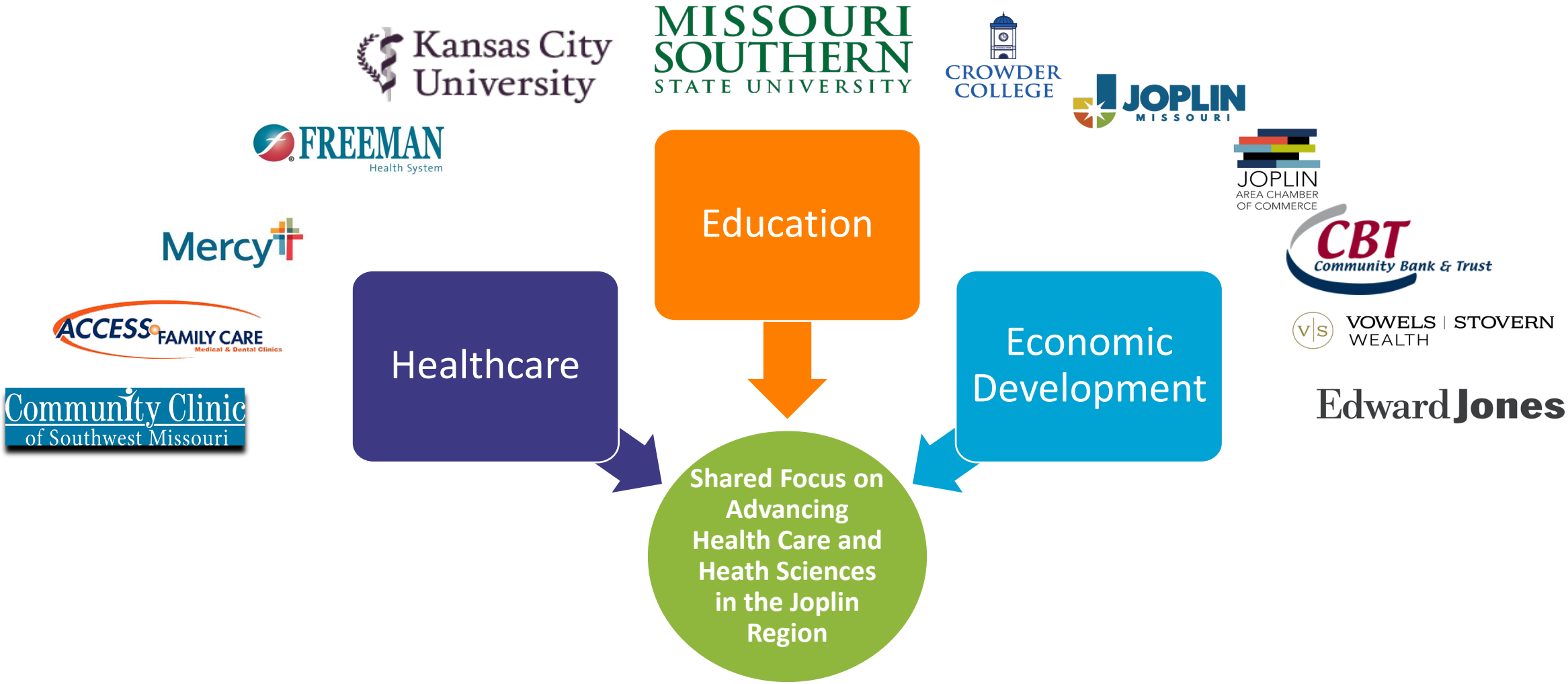
Strategic Roadmap for Economic Development in Joplin Focused on Healthcare, Health Sciences, and Associated Educational Assets

Summary Presentation

March 2024

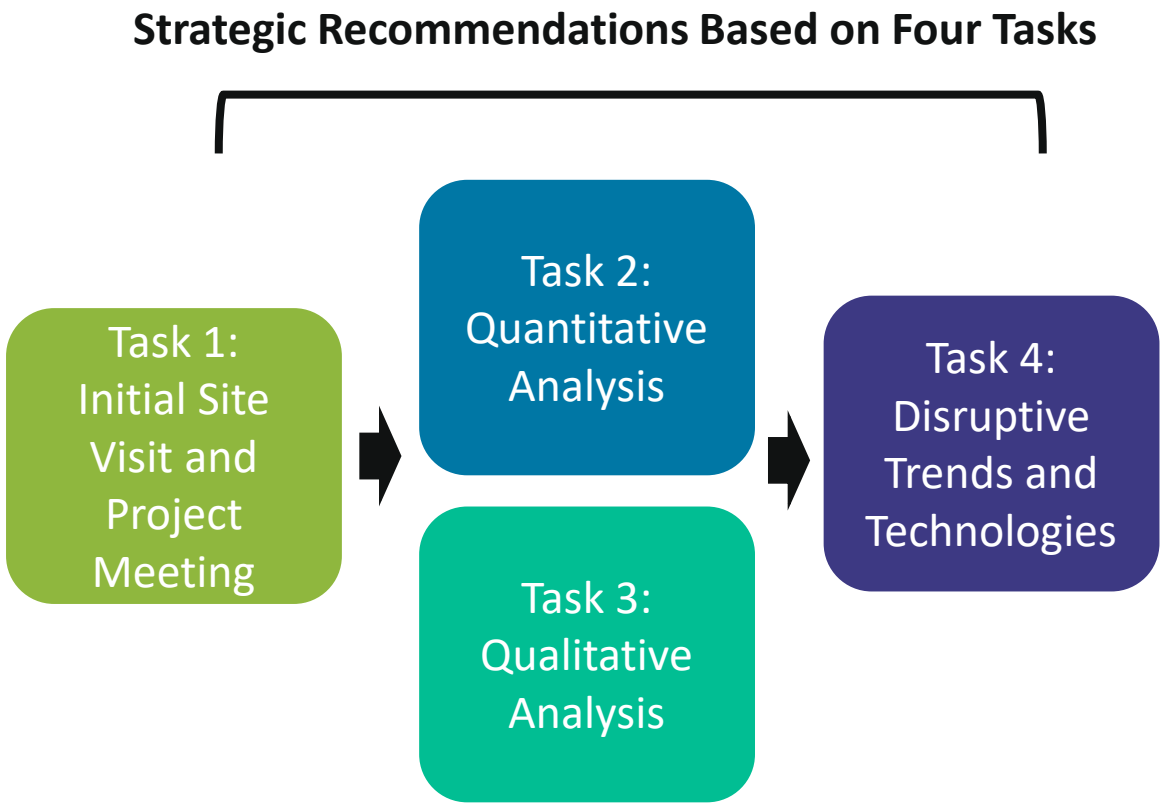
TECONOMY PARTNERS LLC

Joplin Regional Alliance for Healthcare and Health Sciences



Project Goals and Outline of Project Approach

- **Take stock of the Joplin region's position and performance** in healthcare and higher education and examine corresponding growth opportunities.
- Use findings to **develop a strategic action plan** that will guide the long-term growth of Joplin's healthcare and health science cluster, and maximize economic development opportunities at the intersection of "eds and meds."



Based on the assessment, three strategic opportunities emerge for the Joplin Region and the JRAH:

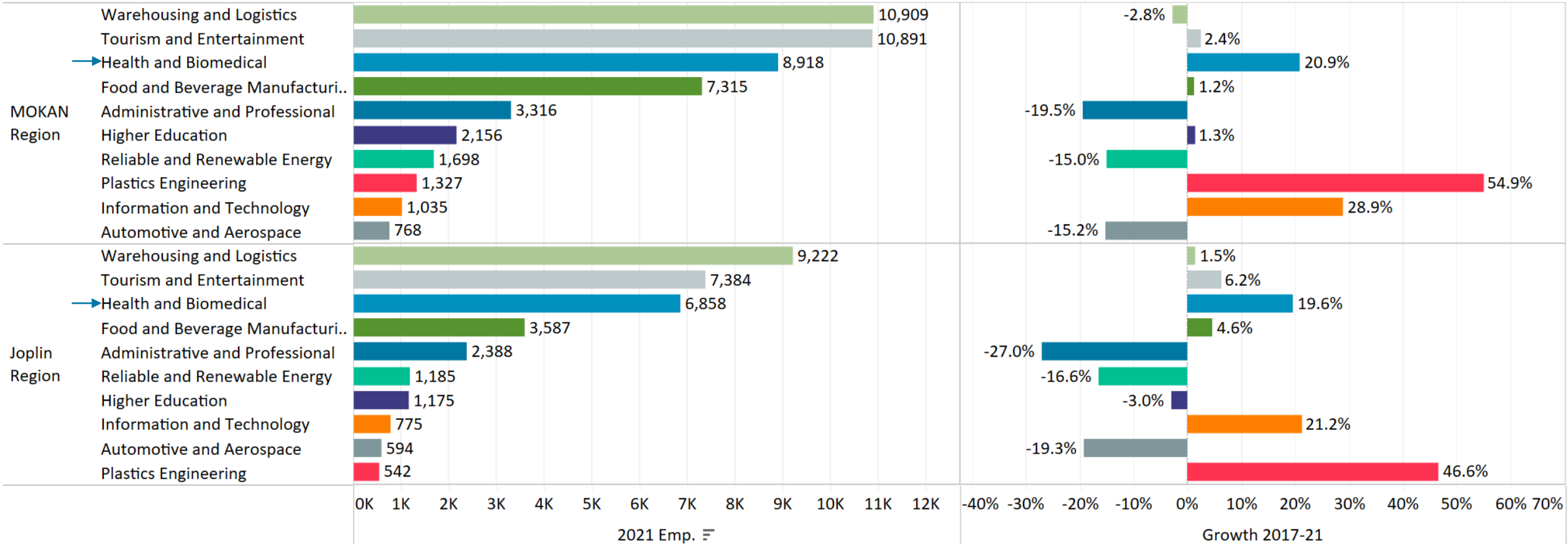
1. Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.
2. Developing research and development, innovation, and business development opportunities based on pre-existing healthcare assets.
3. Advancing healthcare delivery to meet the region's unique community health challenges.

Source: TEConomy Partners, LLC

Opportunity 1: Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.

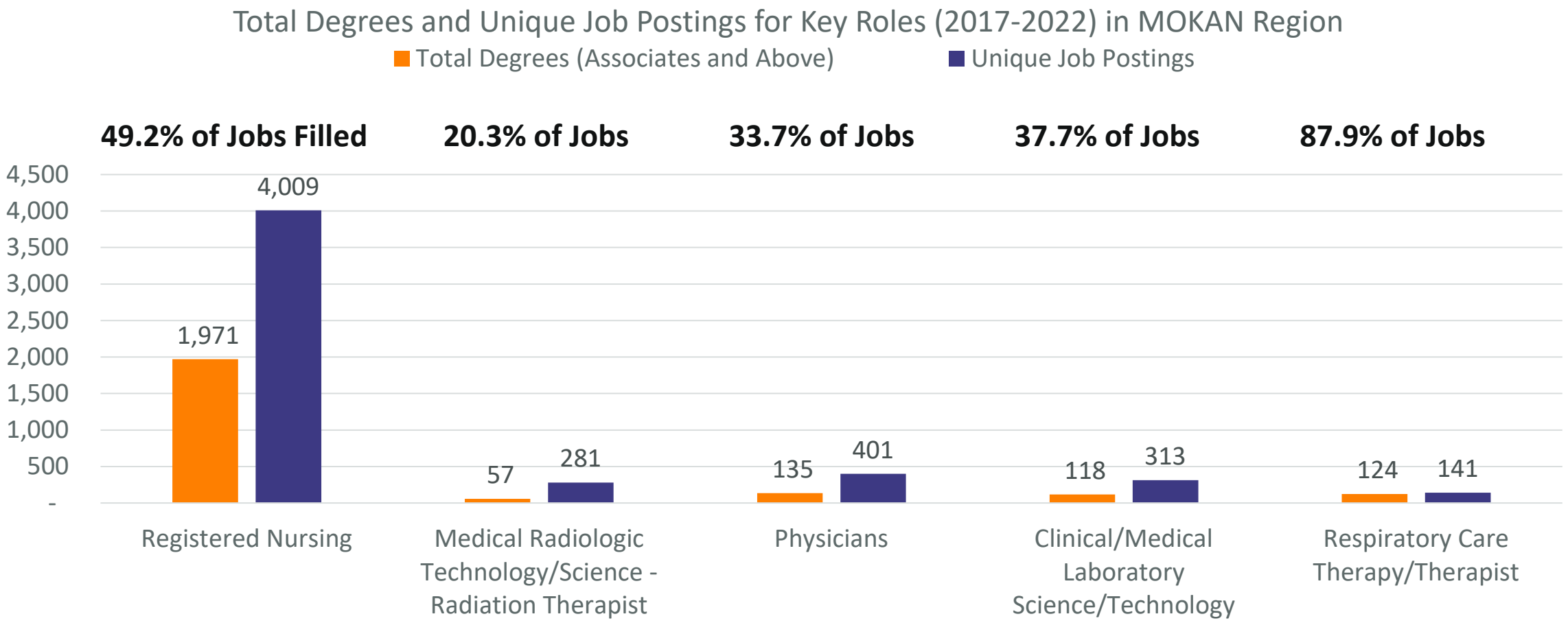
*As one of the region's **largest** and **fastest growing** industries, the Health and Biomedical Sector is driving economic growth.*

Total Employment (2021) and Employment Growth in Key Industries (2017-2021) Across the Joplin and MOKAN Regions



Source: TEConomy analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Datarun 2023.1).
Note: Higher-Education employment includes both private and public employees.

Healthcare degrees are growing quickly, but not at a pace to keep up with the industry's demand – a large disconnect exists across key occupations, especially nursing.

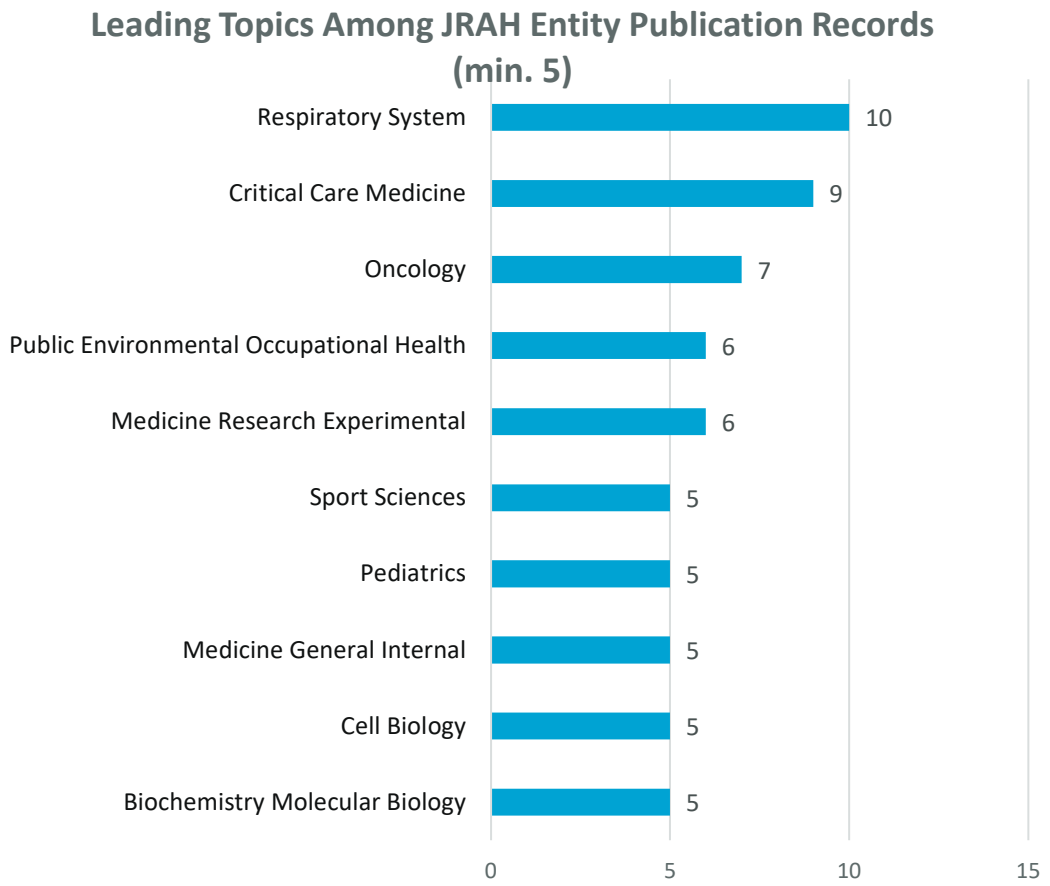


Source: TEConomy analysis of NCES IPEDS and Lightcast Job Postings data (Datarun 2023.2)

Opportunity 2: Developing R&D, Innovation, and business development opportunities based on healthcare assets.

Analysis of Joplin Region finds limited healthcare innovation to date, with some evidence of clinical trials and publications, but no R&D funding or patent activity.

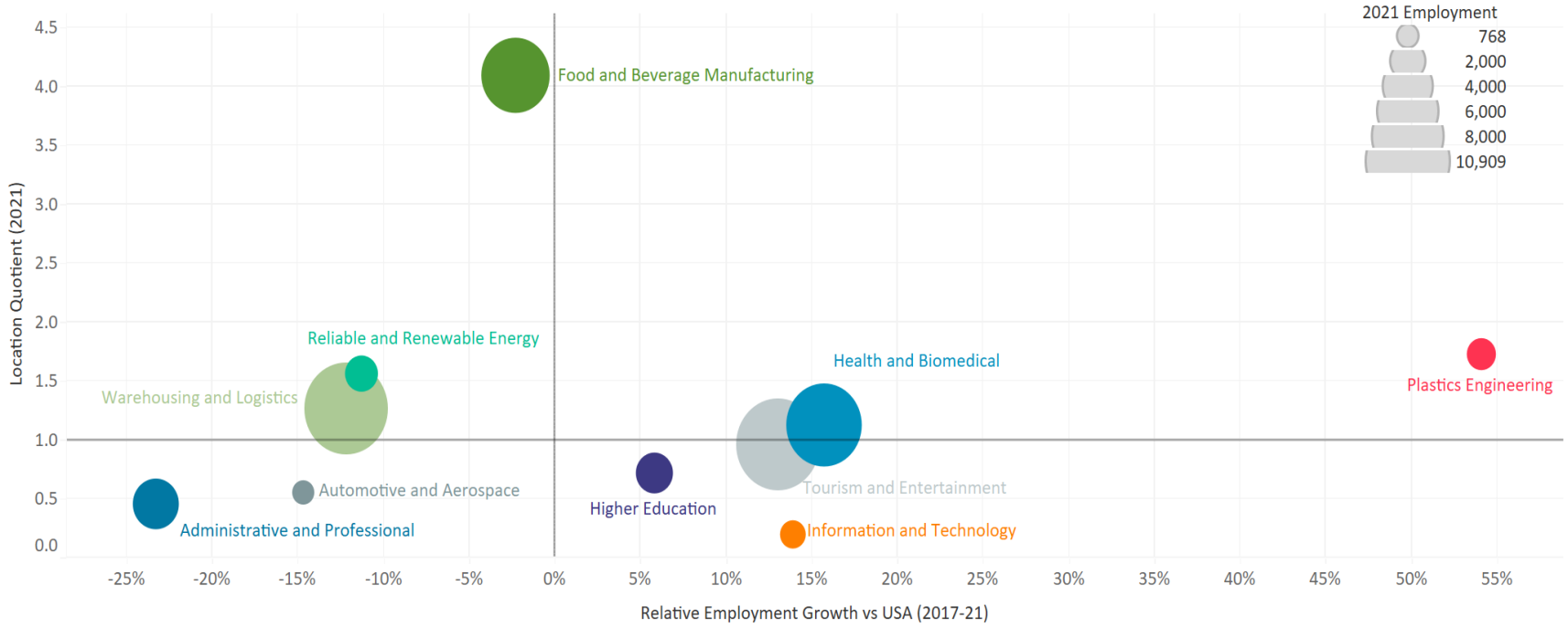
- **Academic Publications:** Of Joplin's 93 biomedical-related academic publications and presentations, leading topics include respiratory systems (10), critical care medicine (7), and oncology (7). KCU is affiliated with more than half of these total biomedical records.
- **Clinical Trials:** Presence of 294 clinical trials active in Joplin at some point since 2020 – Freeman Health is a site for 245, and Mercy Hospital Joplin is a site for 196 (with numerous trials recruiting at both sites).
- **Patents:** Since January 2020, there have been no patents granted to any of the core JRAH institutions, and there was no biomedical-related patent activity in Joplin during that time.
- **Research and Development Funds:** No NIH awards have been granted to JRAH entities, and no R&D expenditures are recorded in national surveys.



Source: TEConomy analysis of various data from Web of Science, ClinicalTrials.gov, Derwent Innovation, NIH RePORT database, and NSF HERD Survey

Economic development opportunities appear in areas adjacent to region's healthcare and advanced industry assets.

Relative Employment Growth and Location Quotient of MOKAN Region Targeted Clusters



MOKAN Region is growing faster than the US Average in numerous industries with economic development potential, including Higher Education, Health and Biomedical, Plastics Engineering, Information Technology

Examples of Medical Equipment Companies:

EAGLEPICHER TECHNOLOGIES

Leggett & Platt®

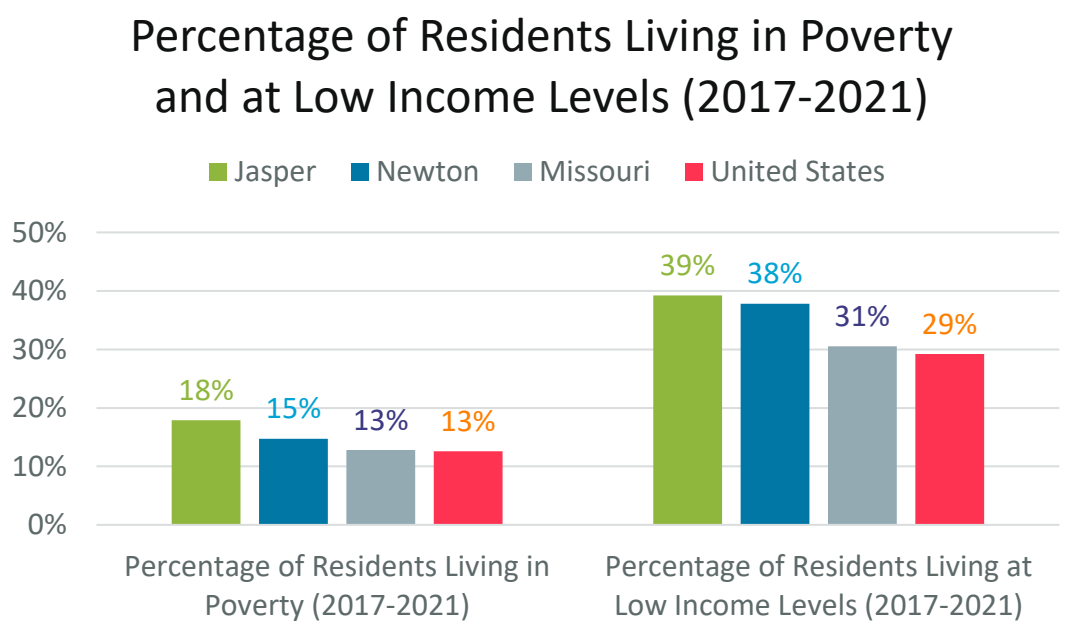
DETECTO® www.Detecto.com

TECONOMY PARTNERS LLC

Source: TEConomy analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Datarun 2023.1).

Opportunity 3: Advancing healthcare delivery to meet the region's unique community health challenges.

In the two-county Joplin MSA, residents are faced with a wide range of challenges that impact their ability to access care.



Category	Topic	Jasper	Newton	Missouri	USA
High Rates of Uninsurance	Uninsured	16%	16%	12%	10%
	Uninsured Adults	20%	19%	14%	12%
	Uninsured Children	8%	9%	7%	5%
Provider Shortages	Primary Care Physicians	1,650:1	1,650:1	1,410:1	1,310:1
	Dentists	1,540:1	4,240:1	1,620:1	1,380:1
	Mental Health Providers	410:1	2,700:1	430:1	340:1
Limited Preventative Care	Preventable Hospital Stays	3,428	3,505	3,052	2,809
	Mammography Screening	44%	37%	40%	37%
	Flu Vaccinations	52%	45%	49%	51%

Source: TEConomy analysis of ACCESS Needs Assessment (2023) and University of Wisconsin Population Health Institute's County Health Rankings & Roadmaps 2023.

Assessment shows region is home to numerous health risks, and that a higher prevalence of illness and workforce limitations put additional capacity stresses on the delivery system.

"Unwellness" of Broader Community

- Adult smoking: ~50% higher than US average
- Adult obesity: 3-7% higher than US
- Uninsured: 16% vs 10% US, 12% Missouri
- High prevalence of chronic diseases:
  - Lung disease
  - Heart disease
  - Mental health
- Premature Death: 29% higher than US average (Jasper), 42% higher (McDonald)

+

Workforce Shortages

- Low ratio of Primary Care Practitioners to population – 26% worse than US average
- Access to care Behavioral - 20% worse than US in urban areas
- Up to 10% open nursing and allied health staff positions in acute settings
- Modest physician shortages also

=

System Capacity Challenges

- Increased preventable hospital stays – 22% higher than US average
- Emergency room access block – DNW 8% vs US average of 3%
- Reported occasional:
  - Unit closures due to staffing shortages
  - ICU bypass
- Limited nursing home places

TECONOMY PARTNERS LLC

Source: TEConomy analysis of University of Wisconsin Population Health Institute's County Health Rankings & Roadmaps 2023.

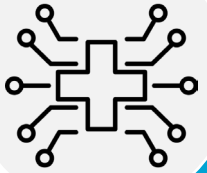
Opportunities Link to Three Strategic Objectives

1. Education for Healthcare and Health Science Careers



Better align the signature higher education assets of the region with the sustained demands of the regional healthcare system for skilled workers. This presents opportunities to enhance economic development along multiple pathways, including growing the existing higher education cluster as an economic driver, reducing personnel acquisition and retention costs across the healthcare system, improving quality of healthcare services and their productivity, and helping to assure the region educates the necessary personnel to advance digital healthcare and other fast moving opportunity spaces.

2. Research, Innovation & Business Development



Leverage distinctive higher education, healthcare, and business assets to build a presence in selected R&D and business innovation opportunities. Emerging technologies in healthcare present multiple pathways for new business development and business expansion, especially, but not limited to, the rapidly developing digital health space. As expertise in research spaces builds, this may also become an attractor for existing businesses to consider a Joplin region location.

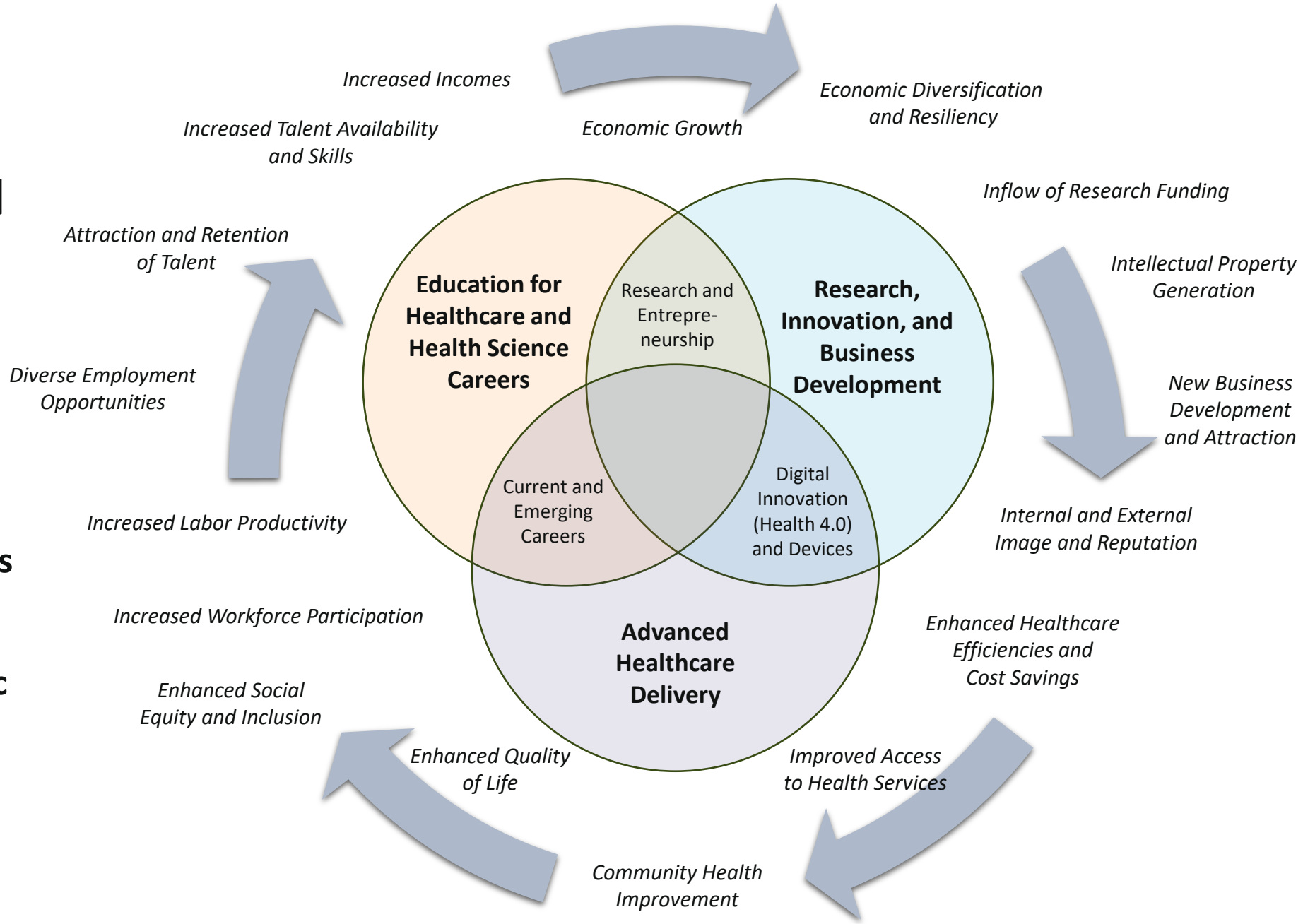
3. Advanced Healthcare Delivery



The healthcare delivery system within the region should become a leader in the development of an advanced healthcare delivery model, that integrates technology, innovation, and new workforce skills, to build an expanding position in digital health (Healthcare 4.0). This strategy seeks to improve regional healthcare access and outcomes via the use of emerging technologies. Through enhancements to the healthcare system, this strategy will have the additional benefit of increasing patient access to care and overall community health, thereby promoting increased workforce participation and productivity levels across the economy.

The three strategies are closely linked and should be viewed as a system.

The strategies and actions are designed to provide the Joplin Region with a wide a range of economic development outcomes and opportunities.



The three strategies include 17 detailed actions.

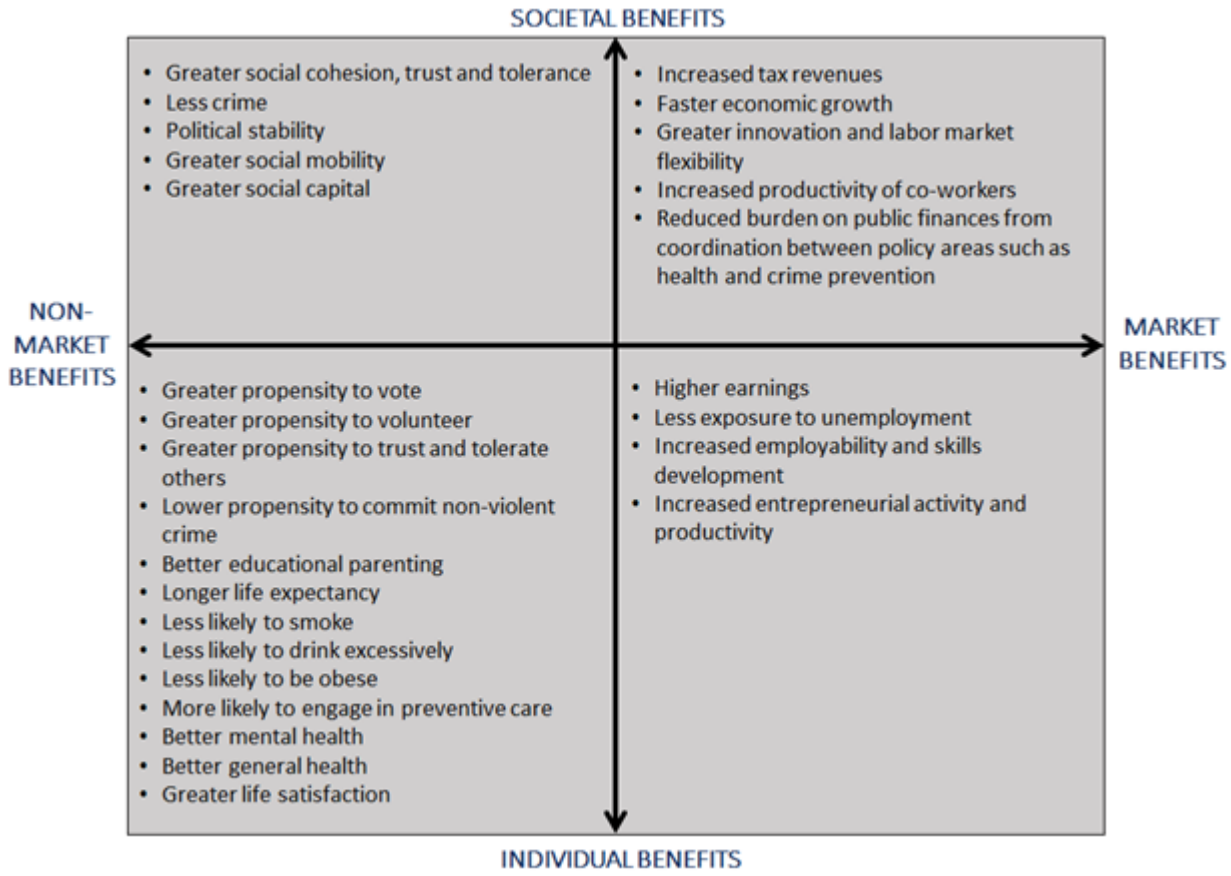
Strategy 1 Education for Healthcare and Health Science Careers	Strategy 2 Research, Innovation, and Business Development	Strategy 3 Advanced Healthcare Delivery
Action 1.1: **Expand higher education programs and enrollments to meet anticipated regional health system needs.** Anticipate at least a 2x output of students with focus on nursing, allied health, and emerging digital health fields.	Action 2.1: **Build a presence in 3-4 selected areas of research:** • Digital Health Solutions • Population and Community Health • Medical Devices and Equipment • Health EdTech	Action 3.1: **Primary and Community Care Delivery Network expansion and coordination.** Increase primary and family care networks in the community including addressing physician gaps, patient navigation, and financial assistance.
Action 1.2: **Extend and integrate regional articulation across K-12/CC/Univ systems.** Build and expand the high school caps programs, creating clear articulation pipelines across strategic career pathways.	Action 2.2: **Seek to establish a signature longitudinal health study connected to regional health improvement and digital health.** Establish as a multi-state regional study, to engage with NW Arkansas interests in health community innovations.	Action 3.2: **Become an early adopter of telehealth and digital health solutions.** Expand use of telehealth, remote patient monitoring, and similar patient-facing digital technologies to significantly improve health service access. Enhance broadband and transportation access to serve the needs of remote and disadvantaged populations.
Action 1.3: **Connect higher education degree programs to emerging signature research platforms and encourage student research engagement.** Encourage both undergraduate and graduate student research engagement.	Action 2.3: **Establish a small support stipend program for innovative post-docs to advance promising technologies.** Innovative ideas can be imported by offering supported positions (perhaps joint between hospitals and universities) for those with interesting, vetted concepts in signature research areas.	Action 3.3: **Develop shared data architectures and resources to capture and analyze clinical and population health data.** Leverage and integrate Telehealth, patient-facing digital health and EMR data to seed research and innovation. Consider the launch of patient gene sequencing to build a shared resource for research and clinical care advancement.
Action 1.4: **Explore collaborative program delivery across regional institutions to leverage faculty and scarce resources.** Many new areas of education are multidisciplinary, engaging computer and data sciences, engineering, biosciences, and other disciplines. Skills may exist across institutions to build novel programs.	Action 2.4: **Establish pre-seed fund to help advance IP commercialization and maximize connection building to MO funders and existing support programs.** Seek to establish a moderate $1-2 million pre-seed fund able to provide up to $50,000 seed investments in promising concepts.	Action 3.4: **Implement caregiver support technologies and workforce management systems.** Adopt technologies to improve workforce efficiency, clinical decision making, workforce skills development, and labor productivity. This may include integration of AI-based solutions.
Action 1.5: **Expand opportunities for internships and other employer-student connectivity building activities.** Seek to maximize the retention of regionally educated students by building early career connections with local employers.	Action 2.5: **Assure availability of incubator space and accelerator/mentor services.** Assure budding entrepreneurs have access to space and support to advance early-stage commercial concepts.	Action 3.5:**Care Model Innovation.** Joint initiative to design, pilot, and implement changes to health roles and delivery models (new roles, flexible scheduling, remote workforce, shared employees/pool/agency). This may include integration of AI-based solutions.
Action 1.6: **Form a series of certificate programs, or stackable credential programs, designed for continuing education in fast moving health tech fields.** Such as cybersecurity, telemedicine, analytics, wearable systems		Action 3.6: **Healthy Community Coalition.** Joint coalition (delivery system, business, government) promoting and funding healthy community initiatives in schools, businesses, and the broader community.

Education for Healthcare and Health Science Careers

Rationale:

There is a strategic need and opportunity to better align the signature higher education assets of the region with the sustained demands of the regional healthcare system for skilled workers. This presents opportunities to enhance economic development along multiple pathways, including growing the existing higher education cluster as an economic driver, reducing personnel acquisition and retention costs across the healthcare system, improving quality of healthcare services and their productivity, and helping to assure the region educates the necessary personnel to advance digital healthcare and other fast moving opportunity spaces.

Potential Impacts:



Strategic Vision: Education

Action 1.1: Expand higher education programs and enrollments to meet anticipated regional health system needs. Anticipate at least a 2x output of students with focus on nursing, allied health, and emerging digital health fields.
Action 1.2: Extend and integrate regional articulation across K-12/CC/Univ systems. Build and expand the high school caps programs, creating clear articulation pipelines across strategic career pathways.
Action 1.3: Connect higher education degree programs to emerging signature research platforms and encourage student research engagement. Encourage both undergraduate and graduate student research engagement.
Action 1.4: Explore collaborative program delivery across regional institutions to leverage faculty and scarce resources. Many new areas of education are multidisciplinary, engaging computer and data sciences, engineering, biosciences, and other disciplines. Skills may exist across institutions to build novel programs.
Action 1.5: Expand opportunities for internships and other employer-student connectivity building activities. Seek to maximize the retention of regionally educated students by building early career connections with local employers.
Action 1.6: Form a series of certificate programs, or stackable credential programs, designed for continuing education in fast moving health tech fields. Examples could include cybersecurity, telemedicine, EMR analytics, wearable systems, etc.

Source: TEConomy Partners Analysis

Research, Innovation, and Business Development

Rationale:

A key determinant of the long-term economic prosperity of any region lies in its ability to innovate and enhance economic output based upon that innovation. Innovation serves as the basis for new businesses and can enhance the products and productivity of existing regional enterprises, leading to business growth. Joplin should leverage its distinctive higher education (especially KCU and MSSU), healthcare, and business assets to **build a presence in selected R&D and business innovation opportunities**. As expertise in research spaces builds, this may also become an attractor for existing businesses to consider a Joplin region location.

Goal: Enhance Elements of the Joplin's Healthcare and Health Sciences Ecosystem to Move Cluster from *Emerging* to *Maturing*



Characteristics of Development			
	Healthcare providers are mainly focused on treating patients.	Healthcare providers are participating in research and development.	Healthcare providers are clinical excellence hubs in research & practice.
	Education providers are mainly focused on serving local industry.	Education providers serve local industry with pockets of excellence.	Education providers are viewed by industry as a gold standard in training.
	Biosciences industry presence is minimal.	Biosciences industry is growing or established.	Biosciences industry is a regional strength, with numerous businesses.
	Healthcare entrepreneurship and access to capital is limited.	Healthcare entrepreneurship and access to capital is supported.	Healthcare entrepreneurship and access to capital is thriving and robust.
	Availability of talent is very difficult across business type.	Availability of talent remains difficult, but workers are generally available.	Talent is readily available and easy to identify and leverage for growth.

Source: TEConomy Partners Analysis

TEConomy considers the following four platforms as opportunities for a Research and Innovation Collaborative to focus on moving forward:

Digital Health

- Refers to the deployment of new technologies to change the way healthcare is delivered, and the ways that healthcare is experienced.
- For the Joplin Region, the opportunity in Digital Health Solutions is embraced by both major health systems, as well as education providers such as KCU.

Population Health

- Population/community health has an important innovation component, such as the usage of health informatics tools, health IT programs, and medical devices.
- For the Joplin Region, the opportunity in population and community health is led by KCU's growing research emphasis in this space.

Medical Equipment

- Medical devices, equipment, and technologies refers to the various devices, equipment, tests, and IT systems that are transforming health care through earlier disease detection, less-invasive procedures, and more effective treatments.
- As a manufacturing hub, Joplin can diversify this sector by expanding into medical equipment.

Health EdTech

- Modern advances in Education Technology (EdTech) are transforming how education is conceived and delivered.
- For the Joplin Region, the Health EdTech opportunity is embraced by a range of educational institutions, including MSSU, Crowder, and KCU's Medical and Dental Schools.

Source: TEConomy Partners Analysis

Preliminary Strategic Vision: R&D and Innovation

Action 2.1 - Build a presence in 3-4 selected areas of research:

- Digital Health Solutions
- Population and Community Health
- Medical Devices and Equipment
- Health EdTech

Action 2.2 - Seek to establish a signature longitudinal health study connected to regional health improvement and digital health.
Establish as a multi-state regional study, to engage with NW Arkansas interests in health community innovations.

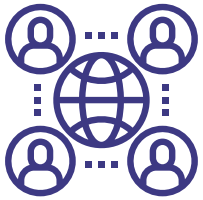
Action 2.3 - Establish a small support stipend program for innovative post-docs to advance promising technologies.
Innovative ideas can be imported by offering supported positions (perhaps joint between hospitals and universities) for those with interesting, vetted concepts in signature research areas.

Action 2.4 - Establish pre-seed fund to help advance IP commercialization and maximize connection building to MO funders and existing support programs.
Seek to establish a moderate $1-2 million pre-seed fund able to provide up to $50,000 seed investments in promising concepts.

Action 2.5 - Assure availability of incubator space and accelerator/mentor services.
Assure budding entrepreneurs have access to space and support to advance early-stage commercial concepts.

Source: TEConomy Partners Analysis

Advanced Healthcare Delivery



Rationale

The healthcare delivery system within the region may become a leader in the development of an advanced healthcare delivery model, that integrates technology, innovation, and new workforce skills, to build an expanding position in digital health (Healthcare 4.0).

This strategy leverages emerging technologies to significantly improve regional healthcare access and outcomes. The use of telemedicine, medical IoT, remote patient monitoring, emerging AI solutions, and other technologies and innovative approaches to care are well **suited to enhancing healthcare in rural and small community settings**.

Key Impacts

Enhancing the healthcare system offers the benefit of increasing patient access to care and overall community health, thereby promoting the economic development through increased workforce participation and enhanced productivity levels.

The “health and wellness” of people living in Joplin and MOKAN Region is a key concern among key stakeholders and is relevant to this strategic plan. Key impacts associated with improving innovation and expansion in primary and community care include:

- Improved healthcare operational cost efficiency.
- Improved the health of the community.
- Improved workforce productivity.
- Increased workforce participation.
- Expanded health market through telehealth/digital health platforms.
- Increased research and associated commercialization opportunities.

Source: TEConomy Partners Analysis

Preliminary Strawman Strategies and Actions: Advanced Healthcare Delivery

Action 3.1 - Primary and Community Care Delivery Network expansion and coordination.
Increase primary and family care networks in the community including addressing physician gaps, patient navigation, and financial assistance.

Action 3.2 - Become an early adopter of telehealth and digital health solutions.
Expand use of telehealth, remote patient monitoring, and similar patient-facing digital technologies to significantly improve health service access. Enhance broadband and transportation access to serve the needs of remote and disadvantaged populations.

Action 3.3 - Develop shared data architectures and resources to capture and analyze clinical and population health data.
Leverage and integrate Telehealth, patient-facing digital health and EMR data to seed research and innovation. Consider the launch of patient gene sequencing to build a shared resource for research and clinical care advancement.

Action 3.4 - Implement caregiver support technologies and workforce management systems.
Adopt technologies to improve workforce efficiency, clinical decision making, workforce skills development, and labor productivity. This may include integration of AI-based solutions.

Action 3.5 - Care Model Innovation.
Joint initiative to design, pilot, and implement changes to health roles and delivery models (new roles, flexible scheduling, remote workforce, shared employees/pool/agency). This may include integration of AI-based solutions.

Action 3.6 - Healthy Community Coalition.
Joint coalition (delivery system, business, government) promoting and funding healthy community initiatives in schools, businesses, and the broader community.

Source: TEConomy Partners Analysis

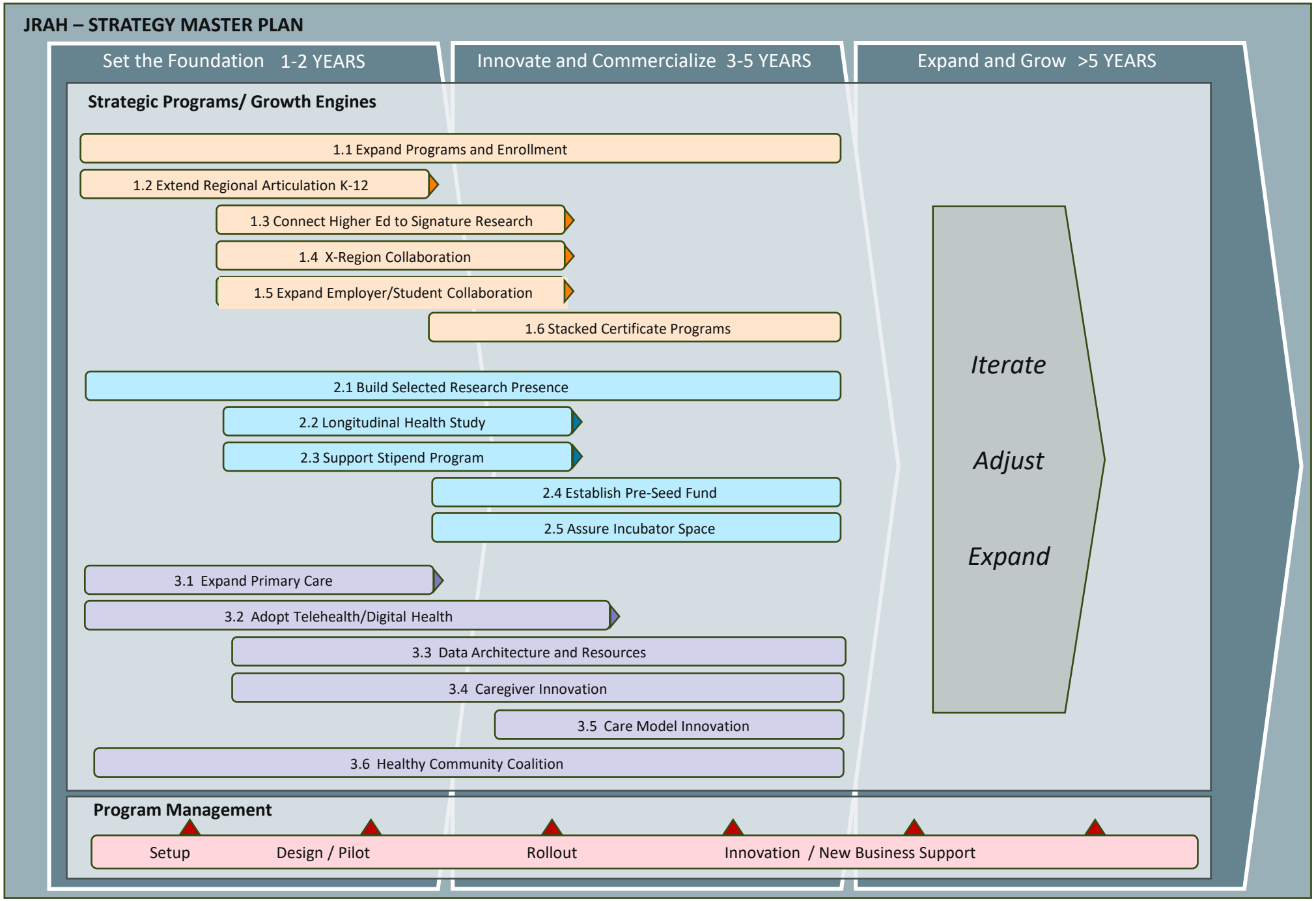
Proposed Timeline for Implementation

HIGHER EDUCATION

RESEARCH/ HEALTH SCIENCES

HEALTH DELIVERY

PROGRAM COORDINATION

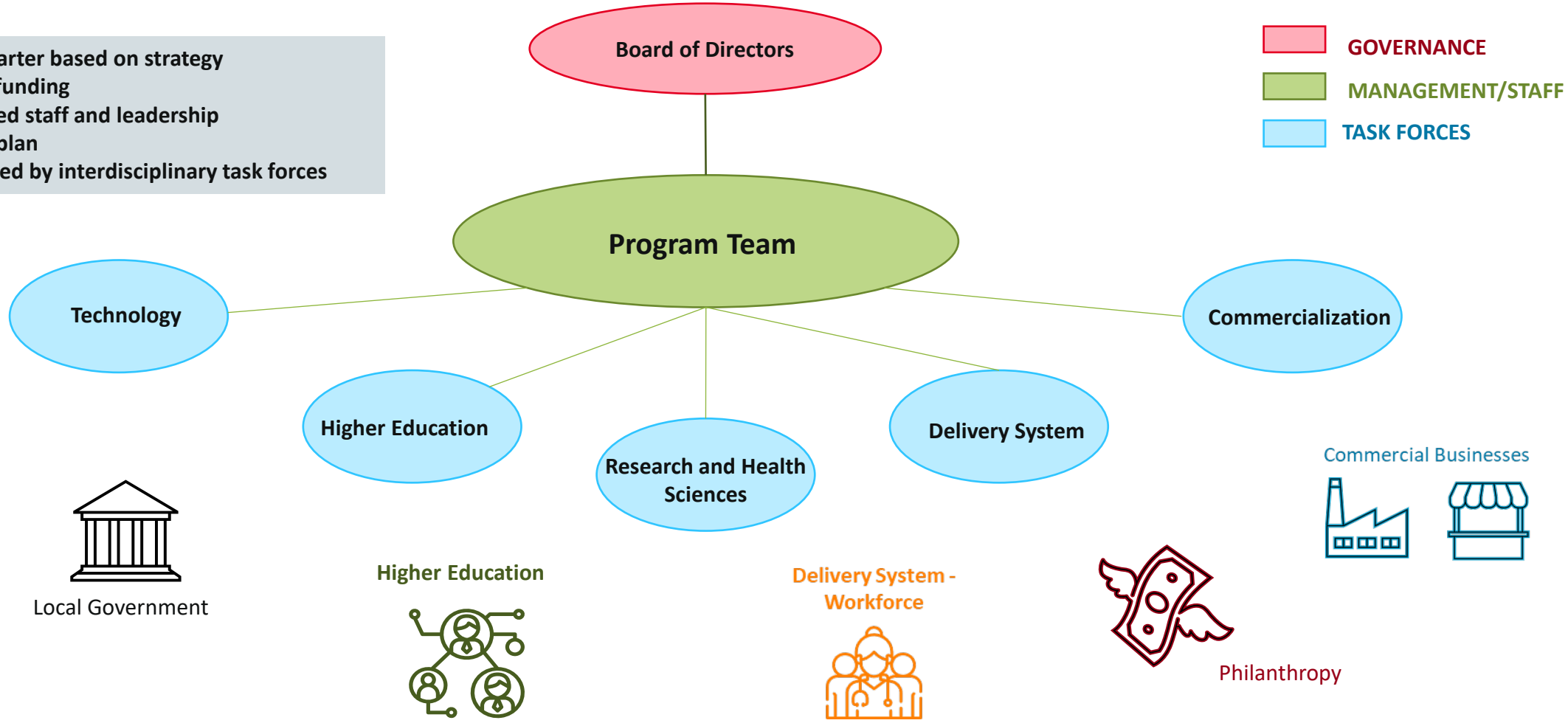


Source: TEConomy Partners Analysis

PRELIMINARY: For Internal Discussion Only – Not for Distribution

It is envisioned that an empowered Joplin Regional Alliance for Healthcare is essential to the success of this system of strategies.

- New Charter based on strategy
- Shared funding
- Dedicated staff and leadership
- Master plan
- Supported by interdisciplinary task forces



Source: TEConomy Partners, LLC

A Strategic Roadmap for Economic Development in Joplin Focused on Healthcare, Health Sciences, and Associated Educational Assets

Prepared for: The Joplin Regional Alliance for Health Care and Health Science (JRAH)
Prepared by: TEConomy Partners, LLC

November 2023





TECONOMY PARTNERS LLC



For more information on this report please contact its authors with TEConomy Partners:
Simon Tripp, Jonathan Dworin, William Higbie, and Dylan Yetter
1.800.TEC.1296 | info@teconomypartners.com | www.teconomypartners.com

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Executive Summary

There is exciting and visible economic growth and new development occurring in Joplin. While a tornado and its recovery may have defined the last decade of Joplin's development, there is an ongoing "newness" and momentum evident across Joplin that is inspiring, outlined by wide-ranging community investments in new single-family homes and apartments, parks and trails, a high school, and high-profile assets such as the new library and arts center.

Increasingly, Joplin is expanding as a hub for healthcare professions and clinical care. The selection of Joplin by Kansas City University to host a medical school as an arm of the KCU College of Osteopathic Medicine and the establishment of the new KCU College of Dental Medicine are exceptional contributions to the region's healthcare landscape. The modern facilities at Mercy Hospital Joplin and the extensive infrastructure of the Freeman Health System contribute to the robust and excellent healthcare ecosystem.

Moreover, Missouri Southern State University in Joplin is investing $37.5 million for a Health Science Innovation Center. This investment aligns with the university's expanded statewide health and life sciences mission approved by the Missouri Coordinating Board for Higher Education. With the existing higher education options provided by Crowder College, MSSU, KCU, and other institutions in the broader MOKAN region, Joplin is expanding a notable system to advance education opportunities for current and emerging healthcare and health science careers.

It is evident that the Joplin region recognizes the potential for further economic development through the growth and convergence of assets in the health industry and higher education sector. To address this opportunity, representatives of multiple major stakeholder organizations formed the Joplin Regional Alliance for Healthcare and Health Science (JRAH). The primary objective of JRAH is to develop a strategic plan to guide the long-term growth of Joplin's healthcare and health science sectors and to maximize economic development opportunities at the intersection of "eds and meds." To this end, JRAH retained the services of specialized economic development consultants at TEConomy Partners to undertake an in-depth situational assessment leading to the development of the strategic action plan profiled herein.



Assessment Findings

The situational assessment involved using quantitative analytics to assess the regional economy and the performance of relevant industry businesses. In addition, multiple qualitative interviews with key stakeholders representing business assets, regional businesses, local government, higher education, and healthcare provider organizations were performed. The data and information collected informed a strengths, weaknesses, opportunities, and threats (SWOT) assessment of the region for eds and meds development. The analysis confirmed that Joplin's health and biomedical industry stands out as an established regional strength and a key driver of overall employment growth.

From 2017 through 2021, the health and biomedical industry in the MOKAN region grew by 21%, rapidly outpacing the U.S. growth rate of 5.2%. The higher education sector is also emerging as a regional strength with a complete continuity of educational options. The higher education sector grew employment by 1.3% in the Joplin region from 2017-2021, bucking national trends as the U.S. average saw a 4.5% decline across the sector.

Joplin is relatively unique for a region of its size, in that it is home to higher education leading to certificates, associate, bachelors, graduate degrees, and professional medicine and dentistry degrees. Stakeholders repeatedly mentioned the responsiveness of Crowder College to regional training needs and the promise of unique, innovative, and collaborative programs such as the KCU/MSSU Accelerated Partnership, Crowder–MSSU Partnerships, and the MOSO CAPS Program.

Although the region has many identified strengths and opportunities, it also faces limited population growth and a tight labor market. With unemployment falling below 3% for the first half of 2023, economic development efforts need to concentrate on meeting the needs of existing employers through workforce development that improves the skills, training, and educational attainment of the regional population. These efforts should improve the community's health, boosting labor force participation and productivity.

Strategic Recommendations

The in-depth assessment of the region, along with the evaluation of healthcare and higher education assets, resulted in the identification of three overarching opportunity areas:

Table ES-1: Recommended Strategic Focus Areas

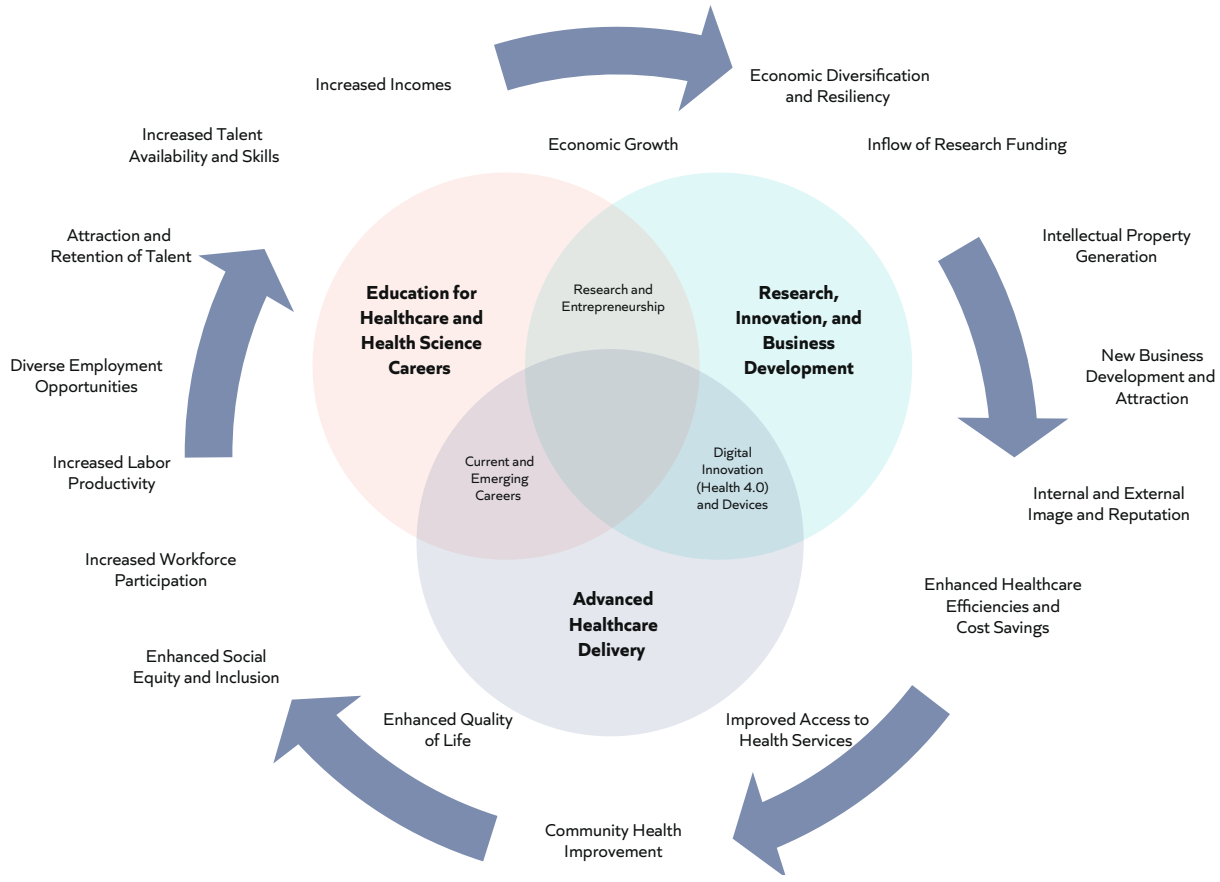
Strategy Focus	Description
1. Education for Healthcare and Health Science Careers	**Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.** The signature higher education assets of the region need to be better aligned with the sustained demands of the regional healthcare system for skilled workers. This presents opportunities to enhance economic development along multiple pathways, including growing the existing higher education businesses as an economic driver, reducing personnel acquisition and retention costs across the healthcare system, improving the quality of healthcare services and their productivity, and helping to assure the region educates the necessary personnel to advance digital healthcare and other fast-moving opportunity spaces.
2. Research, Innovation and Business Development	**Developing research and development, innovation, and business development opportunities based on pre-existing and evolving healthcare and higher education assets.** Joplin may leverage its distinctive higher education (especially KCU and MSSU), healthcare, and business assets to build a presence in selected R&D and business innovation opportunities. Emerging technologies in healthcare present multiple pathways for new business development and expansion, especially, but not limited to, the rapidly developing digital health space. As expertise in research builds, this may also become an attractor for existing businesses to consider a Joplin region location.
3. Advanced Healthcare Delivery	**Advancing healthcare delivery to meet the region's unique community health challenges and increase workforce availability and productivity.** The healthcare delivery system within the region may become a leader in the development of an advanced healthcare delivery model that integrates technology, innovation, and new workforce skills to build an expanding position in digital health (Healthcare 4.0). This strategy leverages emerging technologies to significantly improve regional healthcare access and outcomes via the use of telemedicine, medical IoT, remote patient monitoring, emerging AI solutions, and other technologies and innovative approaches to care suited to enhancing healthcare in rural and small community settings. Through enhancements to the healthcare system, this strategy will have the additional benefit of increasing patient access to care and overall community health, thereby promoting increased workforce participation and productivity levels across the economy and boosting GDP.

Source: TEConomy Partners, LLC.

The strategies are designed to stand individually, but as shown in Figure ES-1, they also intersect with and reinforce each other to produce positive strategic outcomes. The strategies are deliberately advanced with a focused eye on generating multiple economic and community development impacts for Joplin and the MOKAN region.



Figure ES-1: Strategies and Associated Economic and Community Development Impacts



Source: TEConomy Partners, LLC.

Under each strategy area, specific actions rooted in the situational assessment and subsequent deliberations are proposed. These are outlined within Table ES-2, collectively presenting a series of 17 actions.

Table ES-2: Actions Recommended Under Each Strategy

Strategy 1 Education for Healthcare and Health Science Careers	**Strategy 2** Research, Innovation, and Business Development	**Strategy 3** Advanced Healthcare Delivery
Action 1.1: Expand higher education programs and enrollments to meet anticipated regional health system needs. Anticipate at least a 2x output of students with focus on nursing, allied health, and emerging digital health fields.	**Action 2.1: Build a presence in 3-4 selected areas of research:** • Digital Health Solutions • Population and Community Health • Medical Devices • Health EdTech	**Action 3.1: Primary and Community Care Delivery Network expansion and coordination.** Increase primary and family care networks in the community, including addressing physician gaps, patient navigation, and financial assistance.
Action 1.2: Extend and integrate regional articulation across K-12/CC/Univ systems. Build and expand the high school CAPS programs, creating clear articulation pipelines across strategic career pathways.	**Action 2.2: Seek to establish a signature longitudinal health study connected to regional health improvement and digital health.** Establish as a multistate regional study to engage with NW Arkansas interests in healthy community innovations.	**Action 3.2: Become an early adopter of telehealth and digital health solutions.** Expand use of telehealth, remote patient monitoring, and similar patient-facing digital technologies to significantly improve health service access. Enhance broadband and transportation access to serve the needs of remote and disadvantaged populations.
Action 1.3: Connect higher education degree programs to emerging signature research platforms and encourage student research engagement. Encourage both undergraduate and graduate student research engagement.	**Action 2.3: Establish a small support stipend program for innovative postdocs to advance promising technologies.** Innovative ideas can be imported by offering supported positions (perhaps joint between hospitals and universities) for those with interesting, vetted concepts in signature research areas.	**Action 3.3: Develop shared data architectures and resources to capture and analyze clinical and population health data. Leverage and integrate Telehealth, patient-facing digital health and EMR data to seed research and innovation.** Consider the launch of patient gene sequencing to build a shared resource for research and clinical care advancement.
Action 1.4: Explore collaborative program delivery across regional institutions to leverage faculty and scarce resources. Many new areas of education are multidisciplinary, engaging computer and data sciences, engineering, biosciences, and other disciplines. Skills may exist across institutions to build novel programs.	**Action 2.4: Establish pre-seed fund to help advance IP commercialization and maximize connection building to MO funders and existing support programs.** Seek to establish a moderate $1-2 million pre-seed fund able to provide up to $50,000 seed investments in promising concepts.	**Action 3.4: Implement caregiver support technologies and workforce management systems.** Adopt technologies to improve workforce efficiency, clinical decision making, workforce skills development, and labor productivity. This may include integration of AI-based solutions.
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Action 1.6: Form a series of certificate programs, or stackable credential programs, designed for continuing education in fast moving health tech fields. e.g., cybersecurity, telemedicine, EMR analytics, wearable systems, etc.		**Action 3.6: Healthy Community Coalition.** Joint coalition (delivery system, business, government) promoting and funding healthy community initiatives in schools, businesses, and the broader community.

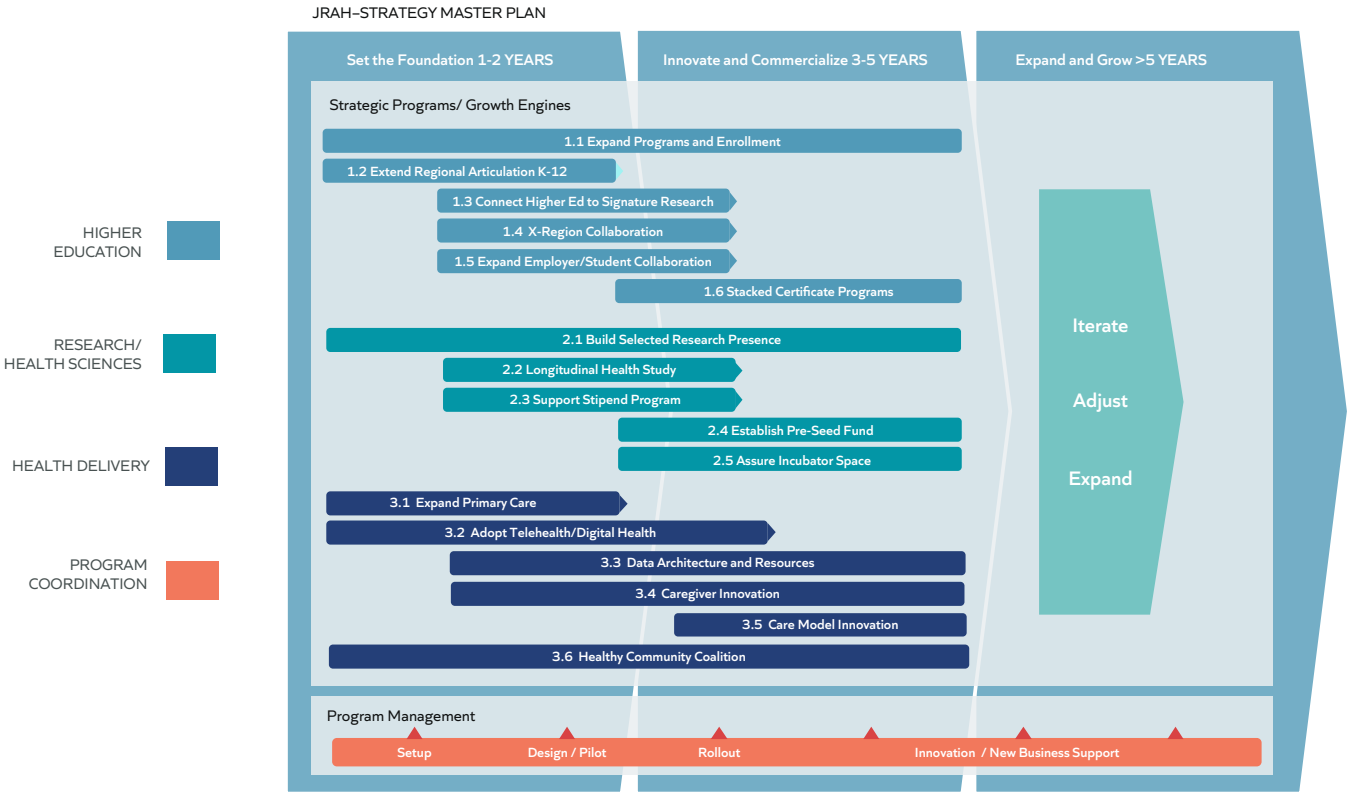
Each of these actions is profiled in detail within the strategic plan report, and specific examples of programs and initiatives around the United States are provided to illustrate types of positive impacts.

Organizing for Success

Many of the strategies and actions highlighted above require the ongoing operation of the Joplin Regional Alliance for Healthcare and Health Sciences (JRAH) as a leadership organization. This would entail developing a new charter based on the strategies and actions outlined above, sources of shared funding, a dedicated staff and leadership model, and the support of interdisciplinary task forces that will help to implement the plan. It is also recommended that the JRAH develop a program management team consisting of two or three staff who would manage the day-to-day work effort. This would include mobilizing and managing resources, executing the program of work, communicating progress to the JRAH and other stakeholders, estimating and sourcing required financial and technical resources, and ensuring on-time, on-budget delivery.

Figure ES-2 provides an initial timeline for the JRAH stakeholders' consideration as they finalize the implementation of the recommended strategies and actions.

Figure ES-2: Envisioned Timeline of Strategic Plan



Source: TEConomy Partners, LLC.

Ultimately, the success of this strategic plan will rest on the ability of the Joplin Region to implement its recommendations. It is anticipated that the JRAH will be able to act as the strong backbone organization required to support such ambition, with the senior stakeholders at the table able to make the long-term commitments needed to bring about the desired benefits for the community.

It is expected that the expansion of the healthcare and higher education sectors will bring numerous benefits to the Joplin region, encouraging stakeholders to commit to the long-term strategy. (Figure ES-3).

Figure ES-3: Shared Investments, Shared Benefits, and Positive Economic and Community Outcomes



Source: TEConomy Partners, LLC.

Conclusion

Joplin and the multicounty MOKAN region benefit from the presence of multiple signature assets in healthcare and higher education that present a robust platform for ongoing economic growth. Aligning healthcare workforce demands and regional higher education programming will provide a multifaceted series of benefits for the region, bringing students (and their dollars) into the community for education, increasing opportunities for students to gain stable employment in the region with good prospects for career advancement, and improving the quality of regional care while lowering costs. As the higher education and healthcare sectors advance collaborations, opportunities will also exist to build distinctive R&D programs designed to improve both systems and spark innovations that engender entrepreneurship and the growth of new and existing regional business enterprises. Because the availability of a skilled, high participation, and productive workforce underpins the ability of Joplin to continue to achieve economic growth, the strategy also advances a community-health-focused approach designed to significantly advance a healthier, more productive regional population while also engendering innovation.

I. Introduction

At the heart of 21st-century economic development is the notion that a region's traded industry sectors are an essential contributor to increasing gross domestic product (GDP) and enhancing the quality of life of its citizens. Traded sector industries refer to those sectors of a region's economy that focus on serving customers and markets beyond the residents and businesses in that community. By bringing new dollars into a regional economy, traded-sector industries exhibit a strong multiplier effect: new jobs are created as exporting firms buy from local suppliers and their workers make purchases from local businesses.

Located in Southwestern Missouri but serving as the "capital" of the multistate MOKAN Region, Joplin has multiple traded sector assets to help advance its economic future.[1] Among Joplin's distinctive strengths are two sizeable institutional businesses in healthcare and higher education, which both serve as traded sectors by bringing in revenues from outside the community and expanding the local economy with "imported" dollars.

On the healthcare side of the equation, Joplin is home to two major hospitals: Freeman Hospital West (part of the Freeman Health System) and Mercy Hospital Joplin (part of Mercy Health System). Overall, the healthcare and health sciences employment in the two-county Joplin Region was 6,858 jobs in 2021. This number extends to 8,918 jobs when surrounding counties are included in the analysis.[2] Healthcare-related employment in the two-county Joplin region is 36% more concentrated than the U.S. average, which is evidence of a specialized advantage for the region.[3] Beyond serving local residents, Joplin's healthcare service providers also attract patients from outside the region by offering select areas of excellence. Furthermore, the availability of quality local education and healthcare providers is one of the critical quality-of-life factors considered by site location consultants and businesses when locating new business investments.

Higher education also acts as a traded sector in the region, serving many students who come to Joplin from outside of the immediate community. Joplin's status as a hub for higher education is anchored by Missouri Southern State University (MSSU), a public university with a growing emphasis on health sciences education. This emphasis is evident in an updated mission and a forthcoming new building to promote modern health sciences education and innovation. Joplin is also the

1 Throughout this report, TEConomy uses the terms Joplin, Joplin Region, Greater Joplin, and MOKAN Region somewhat interchangeably. TEConomy's analysis focused on three tiers of geography: Joplin proper (the city), the Joplin Region (defined as the two-county MSA of Jasper and Newton Counties in Missouri), and the MOKAN Region (Barton, Jasper, Newton, and McDonald in Southwest Missouri, Cherokee and Crawford counties in Southeast Kansas, and Ottawa County in Northeast Oklahoma).

2 TEConomy analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Datarun 2023.1).

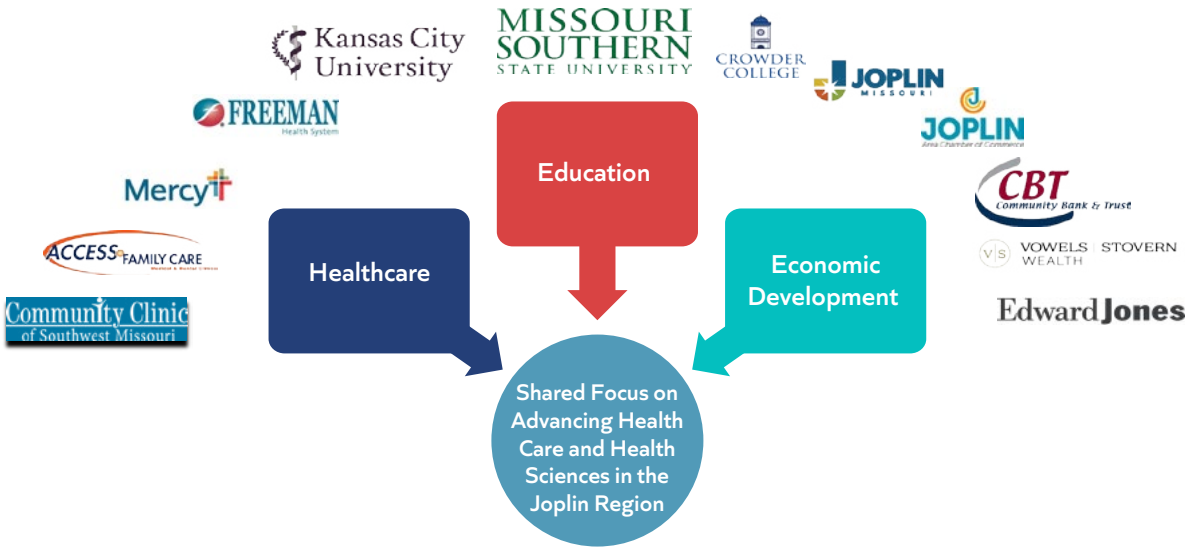
3 Ibid.

home to community college programs operated by Crowder College (at the Advanced Training and Technology Center), where programs are applied to pragmatic needs facing the healthcare sector.

At the intersection of healthcare and higher education, Joplin has also become an essential location for medical education, with Kansas City University–Joplin opening a medical school, part of the KCU College of Osteopathic Medicine, and a new KCU College of Dental Medicine. The relationship between KCU and Joplin's major hospitals is robust with the development of the Joplin campus (named the Farber-McIntire campus) supported by multiple community partners, including Mercy Hospital, Freeman Health System, the City of Joplin, and community philanthropic donations.

There is broad recognition across the Joplin region that the community's efforts to attract colleges of medicine and dentistry are just one piece of an ambition to drive further economic development through the healthcare and health sciences industry cluster and via higher education. Recognizing the opportunity, representatives of multiple major stakeholder organizations formed the Joplin Regional Alliance for Healthcare and Health Science (JRAH). Beginning in April 2023, this leadership group and TEConomy Partners, LLC (TEConomy) worked together to develop a strategic roadmap that guides the long-term growth of Joplin's healthcare and health science cluster and aims to maximize economic development opportunities at the intersection of "eds and meds."

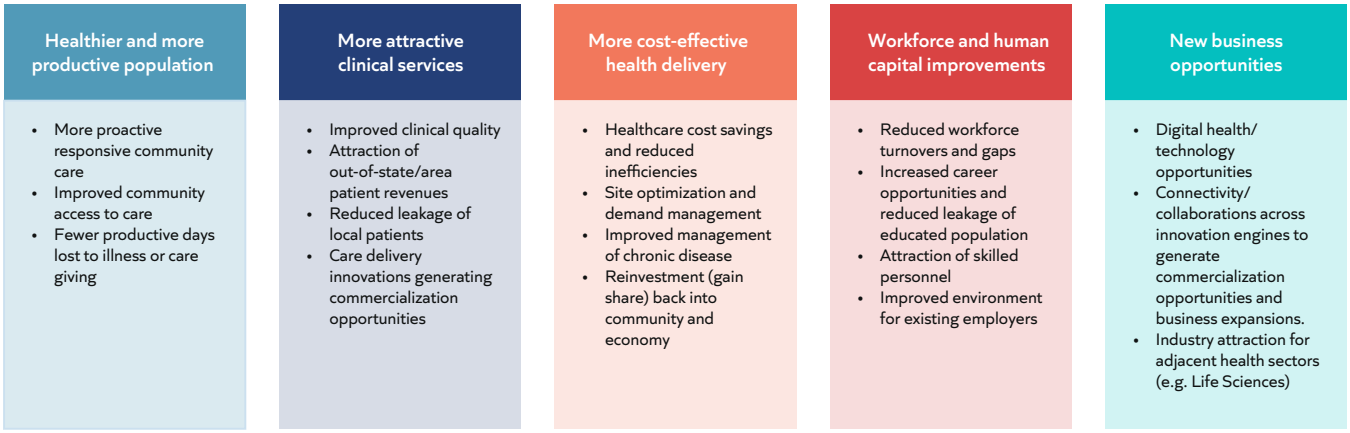
Figure 1: Representation of the Joplin Regional Alliance for Health Care and Health Science (JRAH)



Source: TEConomy Partners, LLC.

Ultimately, a wide array of potential economic development impacts are associated with a thriving healthcare and higher education ecosystem. As highlighted in Figure 2, these impacts generally align across five dimensions: new business opportunities, workforce and human capital, a healthier and more productive population, more attractive clinical services, and more cost-effective health delivery. While each of these is important on its own, the ability to cut across each of these dimensions makes a focus on eds and meds especially appealing.

Figure 2: Desired Impacts from Strategic Action Plan



Source: TEConomy Partners, LLC.

To achieve wide-ranging economic benefits from leveraging higher education and healthcare assets, the JRAH retained the services of specialized economic development consultants at TEConomy Partners to undertake an in-depth situational assessment leading to developing a strategic action plan. The situational assessment used quantitative analytics to assess the regional economy and relevant industry businesses and multiple qualitative interviews with key stakeholders representing business assets, regional businesses, local government, higher education, and healthcare provider organizations. Findings from the situational assessment have been presented in PowerPoint form to the JRAH during the project, with discussion regarding the strategic implications of the strengths, weaknesses, opportunities, and threats thereby identified. The resulting strategic plan, presented herein, does not provide a complete rehash of the situational assessment but rather provides a synopsis of key takeaways from the analysis that drive the subsequent development of recommended strategies and actions.

In the following section, the strategic assessment is briefly summarized—taking stock of the Joplin region's position and performance in healthcare and higher education and examining corresponding growth opportunities. Next, a strategic action plan is informed by this assessment, which seeks to guide the long-term growth of Joplin's healthcare and health science businesses and maximize economic development opportunities at the intersection of higher education and healthcare (eds and meds). The intent is that this strategic document will help to guide the coordination of resources and activities across the healthcare, higher education, and overarching economic development ecosystem in Joplin to help ensure that the city and surrounding region leverage and reinforce their strengths, address ecosystem gaps or weaknesses, offsets threats, and best advances opportunities to achieve economic growth.

II. Situational Analysis:

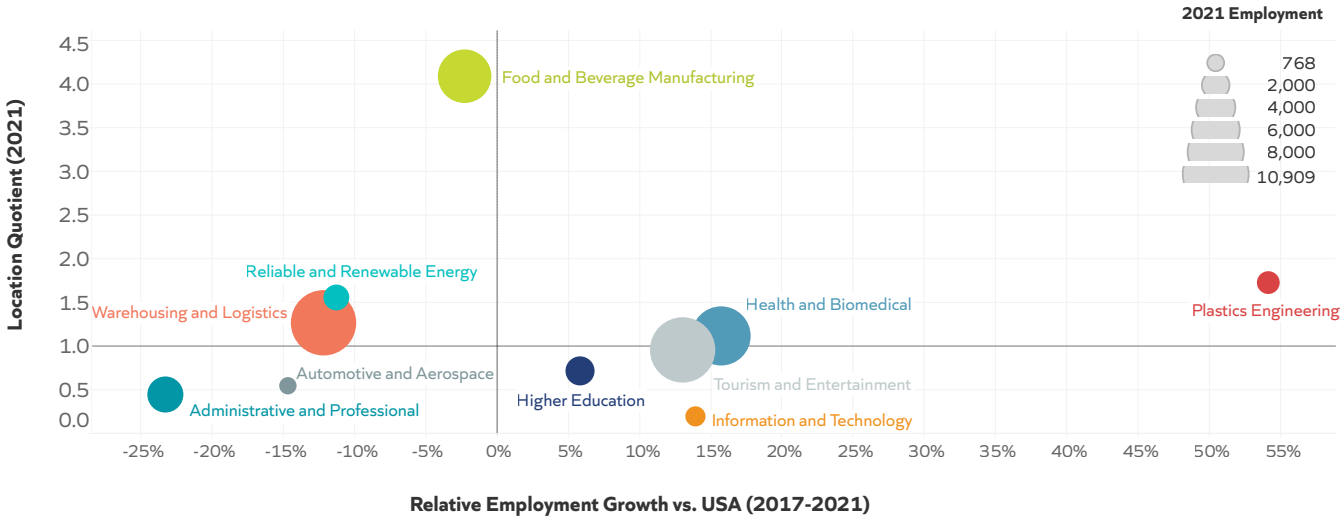
Seizing the Healthcare and Health Sciences Opportunity

As part of this project, TEConomy embarked on a detailed mixed-methods assessment of the Joplin regional economy. This approach included a robust quantitative analysis that leveraged public data sources, proprietary subscription-based data sources, and other data from JRAH institution members. In addition to in-person site visits to meet with community members, TEConomy also spoke to a wide range of individuals in small-group and one-on-one conversations as part of this project. The names of these individuals can be found in Appendix 1.

The sense of momentum across Joplin is palpable, from its new medical education facilities to the developments in its downtown core, like the Cornell Arts Center. While a tornado and its recovery may have defined the last decade of Joplin's story, there is an inspiring feeling of "newness" throughout Joplin, framed by community investments in new parks, schools, and libraries. Community leadership and locally empowered decision-making, in conjunction with the presence of the JRAH, suggest that the time is ripe for the region to move forward in a concerted way. Meanwhile, an engaged and supportive City Council, with a leadership group that seeks to understand economic development and the importance of the health sciences opportunity, is a further sign of encouraging progress.

Joplin's growing health and biomedical industry stands out as an established strength for the region and is driving overall economic growth. Joplin's two large hospitals are significant for a community of its size and contribute to the robust healthcare ecosystem in the MOKAN region. These hospitals reflect the region's considerable growth rate in the health and biomedical industries (21% from 2017-2021), outpacing the U.S. average of 5.2% by more than 15 percentage points during the same period.

Figure 3: Specialization (Location Quotient), Total Employment (2021), and Relative Employment Growth (2017-2021) in Key Industries Across the Joplin and MOKAN Regions



Source: TEConomy analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Datarun 2023.1).

Note: Higher Education employment includes both private and public employees.

An additional asset for the Joplin Region is the presence of a complete continuity of educational options, and the higher education sector is emerging as a strength for the region (not yet specialized but growing significantly faster than the nation). Higher education sector employment increased by 1.3% in the Joplin region from 2017-2021, bucking national trends, whereas the U.S. average saw a 4.5% decline across this sector. Joplin is relatively unique in that, for a region of its size, it is home to relevant higher education through a broad range of certificates, associate's, bachelor's, graduate degrees, and DO degree programs. Beyond these options, the region is also home to novel partnerships across industries and institutions. In numerous interviews, stakeholders repeatedly mentioned the responsiveness of Crowder College to industry training needs and the promise of unique programs such as the KCU/MSSU Accelerated Partnership, Crowder-MSSU Partnerships, and the MOSO CAPS Program. However, the state regulates enrollment across specific degree programs in healthcare, which challenges future growth across programs, including at MSSU.

Despite growth and progress, there are three key barriers that the Joplin region must acknowledge to truly advance its healthcare, health sciences, and higher education sectors:

- **The Joplin Region faces a tight labor market, complicating economic development efforts.** Despite fast growth in health sciences industries, the regional economy saw modest declines from 2017 to 2021: While the U.S. declined by a moderate 0.1% from 2017-2021, the Joplin Region saw employment declines of 0.3%, and the broader MOKAN Region saw 1.1% employment declines. Meanwhile, the labor force in the region is very tight, with unemployment rates below 3% for the first half of 2023.[4] Despite a low cost of living, wages are also much lower than in major metros, posing comparable challenges for further growing this labor force. As a result of this challenge, Joplin must emphasize workforce development by improving the skills, training, and educational attainment of its existing population.
- **Talent attraction remains a core challenge for community leadership.** Despite a wide range of natural resource amenities and recreational opportunities, the Joplin region struggles to coordinate and communicate these valuable assets in a way that comparable regions have been able to do successfully. Talent attraction for healthcare occupations such as physicians is challenged by various items, including limited availability of higher-end retail, the perceived attractiveness of the region and its downtown, limited housing options, and opportunities for trailing spouses. Greater Joplin is also seeing increasing competition for students coming out of MSSU and KCU, which may threaten the retention of its existing students.
- **The growing presence of Northwest Arkansas is impossible to ignore.** The rapid population growth of the Northwest Arkansas region, just one hour to Joplin's south, will likely have a major impact on the area in the coming years. First, the Alice Walton Medical School in Northwest Arkansas is well-resourced and already beginning to approach/poach local talent. Given the regional growth in this direction and the new freeways connecting Northwest Arkansas with Joplin, identifying pathways to collaborate with the Northwest Arkansas Region instead of competing with them is an important opportunity for the region.

Although developing strategies to overcome these barriers is outside of the confines of this project, a recognition of their importance is critical to encouraging economic development in the health and life sciences. Strategic opportunities have emerged from the situational assessment specific to growing the eds and meds sectors. For the Greater Joplin Region to advance its healthcare and higher education sectors to the next level, it will be critical to understand each of these opportunities and the corresponding strategic actions. **The three strategic opportunities that emerge for the Joplin Region from this analysis include:**

- Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.
- Developing research and development, innovation, and business development opportunities based on pre-existing healthcare assets.
- Advancing healthcare delivery to meet the region's unique community health challenges.

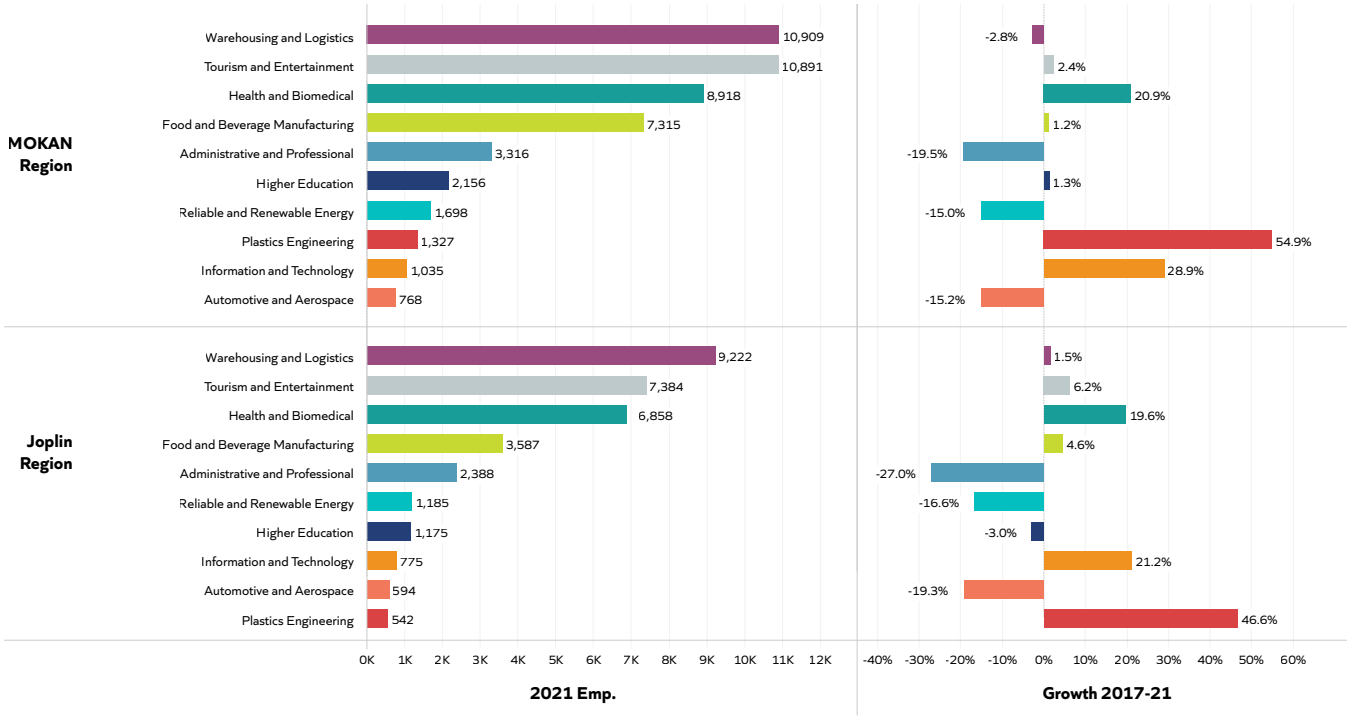
The following sections describe each of these opportunities in more detail.

4 https://www.bls.gov/eag/eag.mo_joplin_msa.htm

Opportunity 1: Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.

As one of the region's largest and fastest-growing industries, the Health and Biomedical Sector drives economic growth in both the Joplin and MOKAN Regions. An analysis of industry dynamics across these interrelated regions finds that health and biomedical is the third largest sector in terms of employment (trailing only warehousing and logistics and tourism and entertainment) and is also the third fastest growing (trailing only plastics engineering and information technology). However, the health and biomedical sector is distinct in that it is both large and fast-growing—logistics and tourism are growing at a slower pace than health and biomedical, and plastics and IT are growing faster but from a much smaller base.

Figure 4: Total Employment (2021) and Employment Growth (2017-2021) in Key Industries Across the Joplin and MOKAN Regions

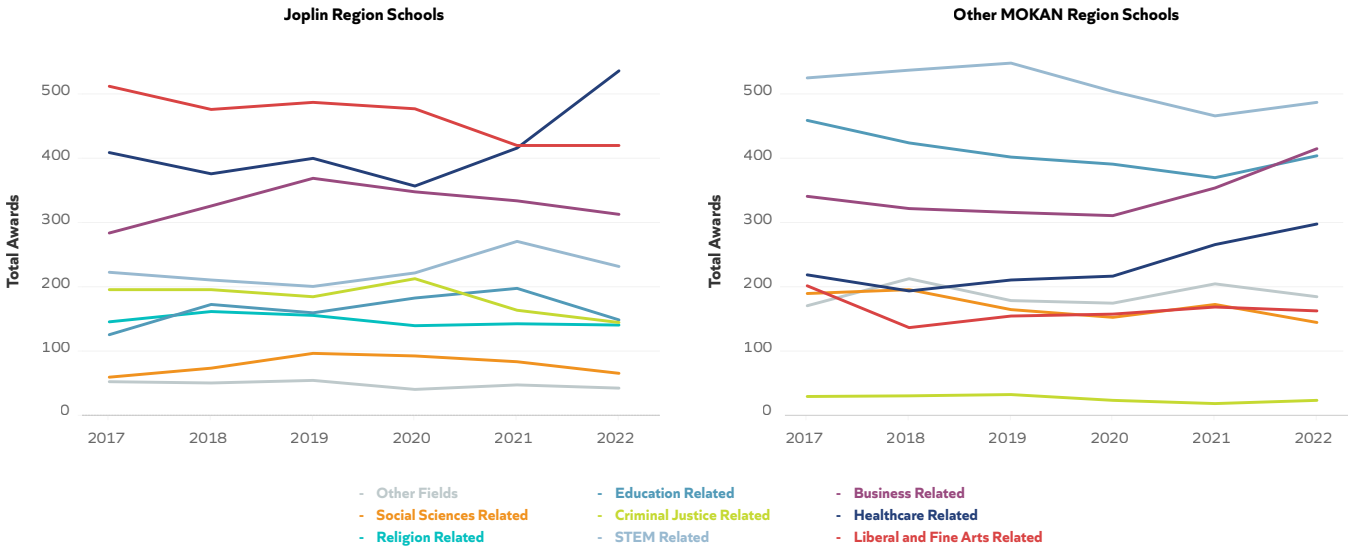


Source: TEConomy analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Datarun 2023.1).

Note: Higher-Education employment includes both private and public employees.

Joplin is also emerging as a hub for education. From 2017 to 2022, the output of all degrees at the associate level and above grew by 13.8% in the Joplin Region, in large part due to growth in healthcare-related degrees. As seen in Figure 5, healthcare-related degrees are a primary driver of educational attainment in the region, and this growth is most pronounced in the years since 2020, coinciding with the development of Kansas City University's Joplin campus and emerging healthcare programs. There has also been some growth in healthcare-related degrees in the extended MOKAN region (including at schools such as Pittsburg State University), though this has been more moderate. As these results show, there is a clear logic behind the coming together of the healthcare and higher education sectors to form the JRAH and develop a shared economic development strategy.

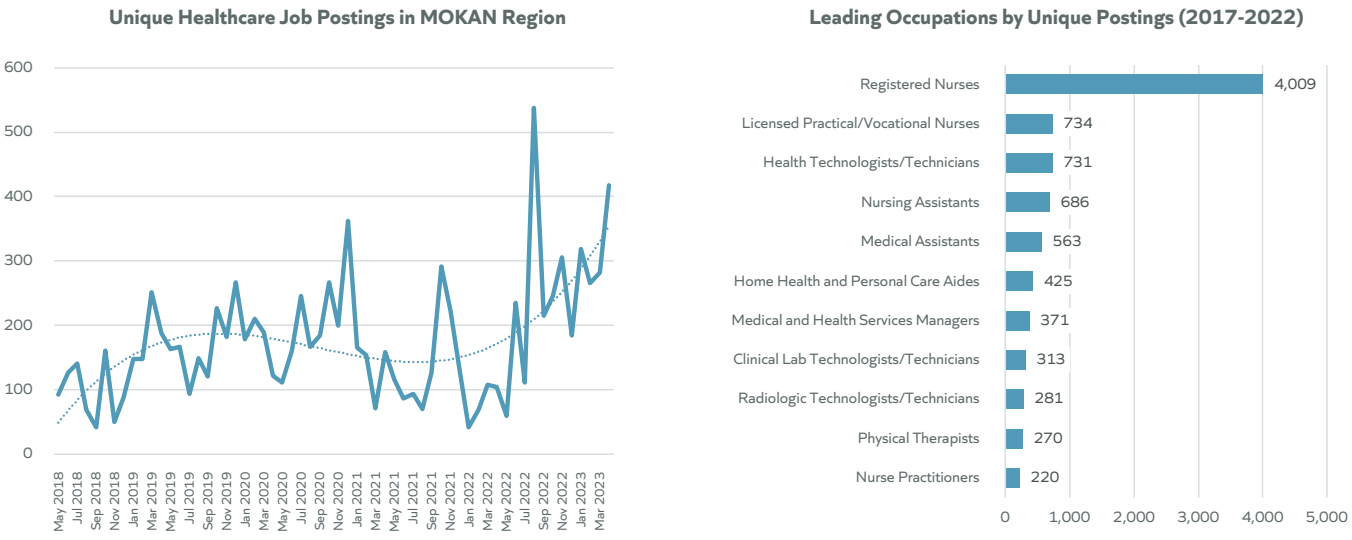
Figure 5: Total Degrees in Joplin and MOKAN Regions by Year (Associates Level and Above)



Source: TEConomy Analysis of NCES IPEDS Data.

Across interviews, a clear and persistent challenge facing the region is concern regarding the **availability of workers** across the spectrum, but especially in nursing. The growth in healthcare-related degrees noted in Figure 5 represents progress for the region, but TEConomy analysis suggests that the healthcare job postings in the MOKAN Region have also seen significant and sustained growth, especially in the past year (Figure 6). Of this growth, there were more than 4,000 postings for nursing from 2017-2022, which suggests an ongoing and persistent need for this critical position.

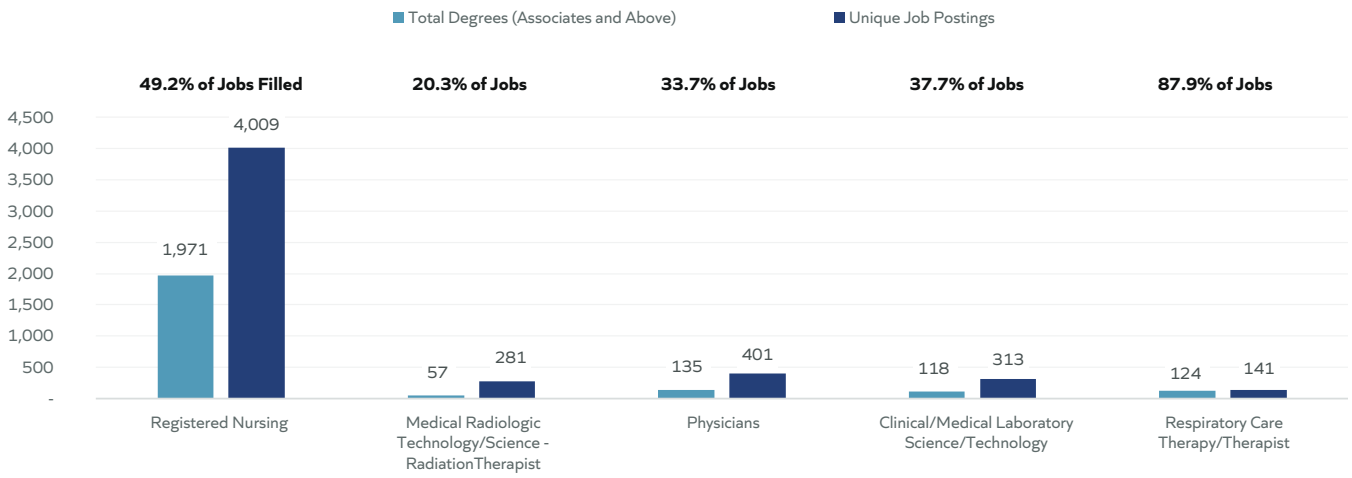
Figure 6: Unique Healthcare Job Postings in the MOKAN Region and Leading Occupations (2017-2022)



Source: TEConomy analysis of Lightcast Job Postings data (Datarun 2023.2).

An assessment of this growth in occupations alongside the increase in healthcare-related degrees finds a significant disconnect, which suggests difficulty filling these roles (Figure 7). For the 4,009 registered nursing postings in the region, there were 1,971 new registered nurses developed at regional institutions of higher education—less than half (49.2%) of the amount needed. A similar pattern is clear across other occupations, such as radiologic tech (just 57 new therapists created for 281 positions, 20% of jobs) and in clinical/medical lab techs (just 118 new technologists developed for 313 positions, 38% of jobs).

Figure 7: Total Degrees and Unique Job Postings for Key Roles (2017-2022) in the MOKAN Region



Source: TEConomy Analysis of Lightcast Job Postings (Datarun 2023.2) and NCES IPEDS Data.

The ability to attract and retain physician talent also stood out in interviews within the healthcare system. As seen in Figure 7, 135 new physicians developed from 2017-2022, but there was demand for more than 400 of these medical professionals across the region. Even if the Joplin region could retain 100% of all physicians developed at KCU Joplin, this would still only be 1/3 of the amount needed based on job postings.

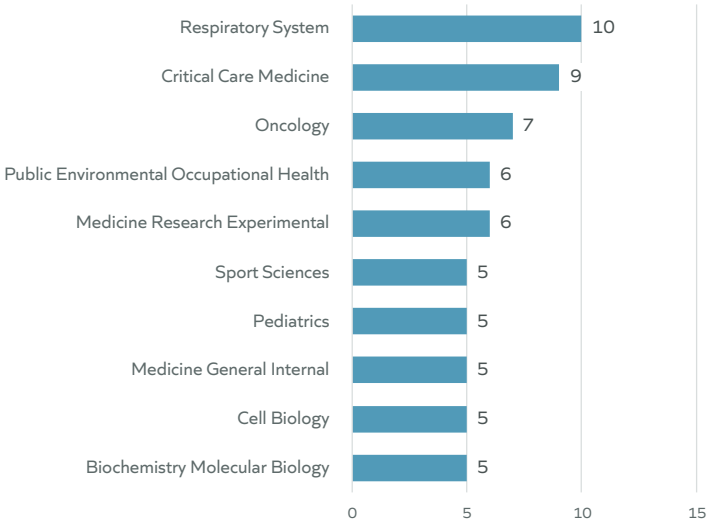
Overall, to help meet the needs of the region's large and fast-growing health and biomedical industry, it is apparent that more graduate output is needed from regional institutions of higher education.

Opportunity 2: Developing research and development, innovation, and business development opportunities based on pre-existing healthcare assets.

While several manufacturing firms are engaged in R&D within the region, there is limited evidence of technology-based start-up ventures coming out of academic research or innovations within the region's healthcare sector. In most towns and cities in the United States with a significant presence of universities, medical schools, and large health systems, there is evident activity around health science and biomedical innovation. This has not yet occurred in the Joplin region, but an emerging opportunity exists to spark development along this pathway.

Despite the growth in healthcare and biomedical employment, TEConomy's analysis of healthcare innovation finds limited output so far. Since January 2020, there has been evidence of clinical trials and publications activity occurring in the region. As shown in Figure 8, there are ten thematic topic areas across JRAH entities with more than five publication records. Of Joplin's 93 biomedical-related academic publications and presentations, leading topics include respiratory systems (10), critical care medicine (7), and oncology (7). KCU is affiliated with more than half of these total biomedical records. KCU is also seeking to expand its research and is considering establishing a public health-oriented research program.

Figure 8: Leading Topics Among JRAH Entity Publication Records (min. 5)



Source: TEConomy Analysis of Web of Science Data.

Clinical Trials are an area of emerging activity for the Joplin region. An analysis of clinical trials in the region finds the presence of 294 clinical trials active at some point since 2020.[5] Freeman Health is a site for 245, and Mercy Hospital Joplin is a site for 196, with numerous trials recruiting at both sites.

Despite clinical trial and publication activity, since January 2020, no patents have been granted to any of the core JRAH institutions, and there was no biomedical-related patent activity in Joplin during that time. Meanwhile, no NIH research

5 TEConomy Analysis of ClinicalTrials.gov data

awards have been granted to JRAH entities, and no R&D expenditures are recorded in national surveys.[6] That is not to say that innovation is not presently occurring in the region. While Joplin's Health and Biomedical Sector is driving economic growth, other advanced industries are also playing an essential role in boosting development prospects. In particular, plastics engineering, information technology, and food and beverage manufacturing stand out as areas of opportunity for the region.

Joplin is home to several health-related opportunities that may be leveraged to encourage economic development. First, there are distinct economic development prospects related to BioHealth business attraction in areas adjacent to pre-existing strengths:

- Joplin's strength in food and beverage manufacturing and processing suggests opportunities to attract functional food companies—those focusing on the intersection between food, health, and wellness.
- Located at the intersection of I-44 and I-49, Joplin is an important logistics and distribution location. The region's strong geographic positioning and strength in transportation/distribution could help lure biomedical logistics operations.
- Across the region's advanced manufacturing sectors, there are also opportunities related to healthcare, especially in the region's plastics engineering sector—fastest-growing from 2017-2021. For example, Pitt Plastics products used in healthcare include gloves, isolation liners, and water-soluble bags. Other examples of advanced manufacturing companies with a presence in the region developing new products for healthcare markets include:
    - In Joplin, leading companies like Eagle Picher see their batteries used in wheelchairs, scooters, pumps, ventilators, beds, and x-ray applications.
    - In Webb City, Detecto is among the nation's largest manufacturers of medical scales and weighing products.
    - In Carthage, Leggett and Platt is developing innovative medical chairs, while a main subsidiary is innovating in foam production, with applications that include medical masks, wound therapies, orthotics, and toppers for hospital mattresses.

It may be that product development synergies may be encouraged by connecting the work of JRAH organizations to these health product manufacturing companies and their innovation pipelines. By serving as product development partners, early adopters, and demonstration sites, healthcare and higher education systems can help advance regional innovative products towards faster commercialization and market success.

Importantly and related to this, there are also opportunities for Joplin to grow from within by fostering entrepreneurship in eds and meds. The region has had some success with health-related startups developing in the Joseph Newman Innovation Center, and there are opportunities to expand this pipeline of companies. Similarly, as the region seeks to grow a future-ready workforce, developing entrepreneurs in educational technologies may offer an economic development benefit. The region's growing information technology sector, in conjunction with a growing focus on community health and wellness, may attract companies wishing to use Joplin's population for testing and piloting digital health technologies.

6 TEConomy Analysis of NSF HERD Survey and NIH RePORT Database

Opportunity 3: Advancing healthcare delivery to meet the region's unique community health challenges.

Both Joplin and the Greater MOKAN Region are geographically diverse, with mostly rural counties based around the urban center of Joplin. From a community health perspective, this diversity presents both benefits and challenges.

The region benefits from two well-established health delivery systems (Freeman and Mercy), which treat over 25,000 inpatients and over a quarter of a million outpatients annually through their networks of over 25 hospitals and ambulatory facilities. Both systems have a long and successful track record in the region, providing a comprehensive suite of primary, acute, and tertiary services. They have also both been recognized for quality of care and patient service from national ratings agencies during the past five years.[7]

Primary care, specifically, is provided by these two systems along with other providers, including Access Family Care and the Community Health Clinic of Southwest Missouri. Students in the region's nursing, medical, and dental schools also provide care through a variety of hands-on learning programs. Finally, rounding out community health services, public health departments at a county level support basic programs like vaccinations, preventive services, and public health information.

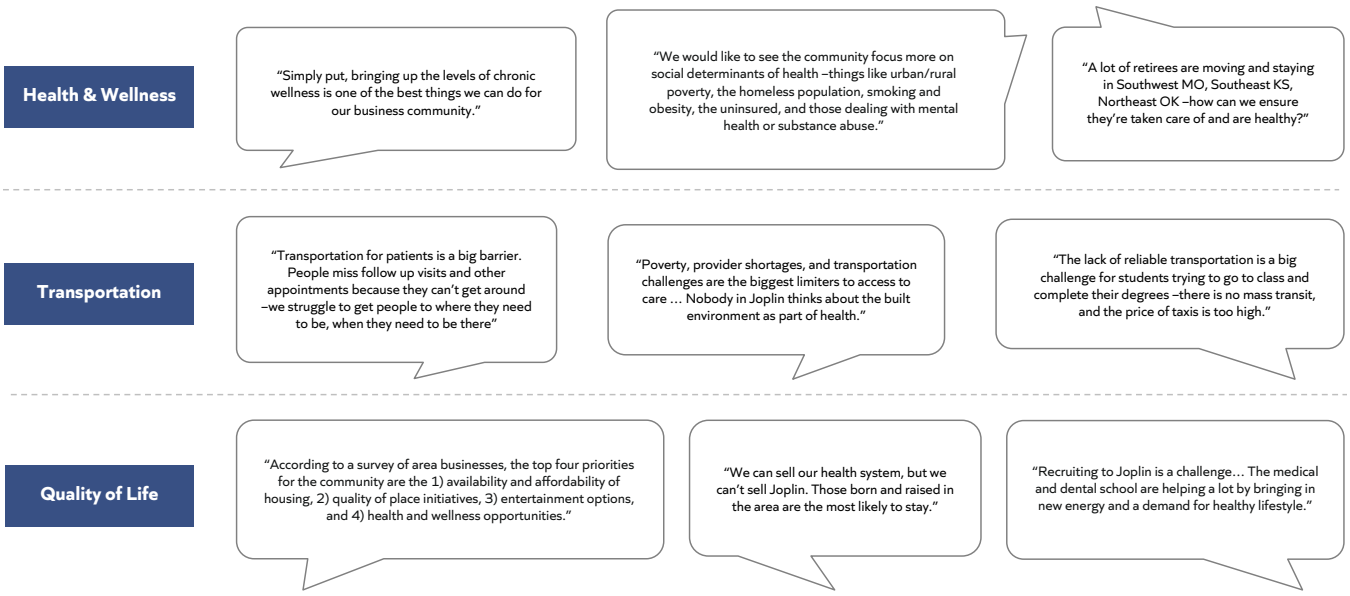
Community Health Challenges

Even with this strong foundation, the region lacks community access to health services compared to state and national averages. This is due to several factors, including population density, overall poverty levels, and a lack of community-based primary care services.

Physical access to care is complicated by the largely rural nature of the region. With most healthcare facilities located in urban centers, patients living in more rural counties must travel long distances for care. This issue is further exacerbated by the region's lack of public transport options, an issue frequently highlighted in community needs assessment surveys. Conversations with stakeholders frequently referenced the importance of health, wellness, transportation, and other community issues facing the Joplin region (Figure 9).

7 https://www.hospitalsafetygrade.org/h/mercy-hospital-joplin, https://www.freemanhealth.com/freeman-health-system-accomplishments-and-awards

Figure 9: Sampling of Representative Quotes with Community Stakeholders



Source: TEConomy Analysis of Stakeholder Interviews (Quotes are Approximate); MOKAN Survey Results

Poverty levels in the region are also high. In Jasper and Newton counties alone, poverty levels and low-income levels are well above state and national averages, with 18% of the population in Jasper living in poverty and 39% living at low income.[8] These figures are worse for in-need populations such as people over 65 or children under the age of 5. For example, McDonald County has a child poverty rate of 26% compared to the U.S. average of 17%.[9]

This level of income challenges directly correlates to higher rates of uninsurance (See Table 1). Jasper and Newton counties have a 16% uninsured rate, 33% higher than the Missouri average and 60% higher than the U.S. average. People without insurance at low incomes often go without necessary preventative and therapeutic care. Diseases left untreated in their early stages regularly develop into chronic, more costly ailments, leaving those without insurance to seek pro bono care within the system or forgo care altogether.

Community Health Challenges are Impacting Economic Development

Community health issues directly impact economic development in multiple ways, most notably in terms of workforce participation and workforce productivity. Simply put, a healthy community will see more people willing and able to work, lower absenteeism, and higher productivity on the job. With the Joplin region presently experiencing very low levels of population growth and low unemployment, the economy is highly constrained in its ability to expand GDP through the typical pathway of expanding employment. Building a healthier community, with improved healthcare access and outcomes, is a means to build a more resilient base of labor in the community to meet the expansion needs of existing employers and attract new employers to the region. It is fundamental to the economic development prospects for Joplin and the surrounding region.

8 As defined as 2x the poverty level income
9 https://www.countyhealthrankings.org/explore-health-rankings/county-health-rankings-model/health-factors/social-economic-factors/income/children-in-poverty?year=2023&county=29119

A Lack of Primary/Family Care

The supply of caregivers in the community providing front-line primary services is also low. Primary care coverage, as defined by the ratio of primary care physicians to the population, for Jasper and Newton Counties, the region's most populated, is 26% lower than the U.S. average. This average is worse in more rural counties with lower population density (Lawrence 46%, MacDonald 582%).[10] In fact, all the Missouri counties in the southwest region are classified as Medically Underserved Areas (MUA) for the Primary Care discipline by the Health Resources and Services Administration (HRSA).[11]

Table 1: Highlighted Measures of Health Access in Two-County Joplin MSA

Category	Topic	Jasper	Newton	Missouri	U.S.A
High Rates of Uninsurance	Uninsured	16%	16%	12%	10%
	Uninsured Adults	20%	19%	14%	12%
	Uninsured Children	8%	9%	7%	5%
Provider Shortages	Primary Care Physicians	1,650:1	1,650:1	1,410:1	1,310:1
	Dentists	1,540:1	4,240:1	1,620:1	1,380:1
	Mental Health Providers	410:1	2,700:1	430:1	340:1
Limited Preventative Care	Preventable Hospital Stays	3,428	3,505	3,052	2,809
	Mammography Screening	44%	37%	40%	37%
	Flu Vaccinations	52%	45%	49%	51%

Source: TEConomy analysis of ACCESS Needs Assessment (2023) and University of Wisconsin Population Health Institute's County Health Rankings & Roadmaps 2023.

Although staffing shortages in primary care appear to be most acute, the broader hospital system also experiences a lack of essential clinical personnel. Human resources leaders from both hospital systems reported nursing staffing operating at roughly 90% of budgeted levels and shortages of key medical and allied positions. Although this was a common concern across the country during the COVID pandemic, these shortages remain persistent and have proven difficult to resolve post-pandemic.

10 https://www.countyhealthrankings.org/
11 https://data.hrsa.gov/tools/shortage-area/mua-find

Poor Population Health Outcomes

The lack of coverage and service access is, in turn, reflected more broadly in poor health outcomes across southwest Missouri. As shown in Table 2, the Southwest region trails the Missouri average across multiple indicators such as health access, health risk behaviors, and use of preventative services.

Table 2: Health, Risk Factors, and Preventative Practices in Southwest Region

Topic	Measure	Southwest Region	Missouri	Percentage Point Difference
Healthcare Access	Poor general health	21.5%	19.7%	1.8%
	Last had routine physical checkup >2 years	20.0%	16.3%	3.7%
	Did not get medical care due to cost	56.4%	52.7%	3.7%
	Needed to see a dentist in past 12 months but could not due to cost	23.0%	19.0%	4.0%
Risk Behaviors	Currently use smokeless tobacco	6.7%	5.0%	1.7%
	Current electronic cigarette use	6.2%	5.3%	0.9%
	Currently smoke cigarettes	22.6%	21.9%	0.7%
Previous Diagnoses	Ever told had arthritis	30.2%	28.3%	1.9%
	Ever told had COPD, emphysema, or chronic bronchitis	10.3%	8.5%	1.8%
	Ever told had a depressive disorder	25.4%	23.0%	2.4%
	Ever told had coronary heart disease	5.3%	4.6%	0.7%
	Ever told had heart attack	6.6%	5.1%	1.5%
	Ever told had stroke	5.1%	4.5%	0.6%
Preventative Care	Obese (>30 BMI)	32.8%	31.2%	1.6%
	No mammogram within past 2 years for women age 50-74	33.3%	26.3%	7.0%
	No pap exam in last 3 years among women age 18 and older	33.9%	27.0%	6.9%
	Never had a sigmoidoscopy or colonoscopy among men and women age 50+	34.6%	30.5%	4.1%

Source: TEConomy Analysis of ACCESS Needs Assessment (2023).

Taken in total, these shortcomings bear some responsibility for the lack of overall healthiness of the population. Recent community health needs assessments conducted by Access Health and the Ozark Health Commission highlight higher levels of disease in the community.[12] Mental health, lung disease, cardiac health, and substance abuse are all cited as major concerns, exceeding both state and national averages.

12 Access Health CHNA, Joplin CHNA

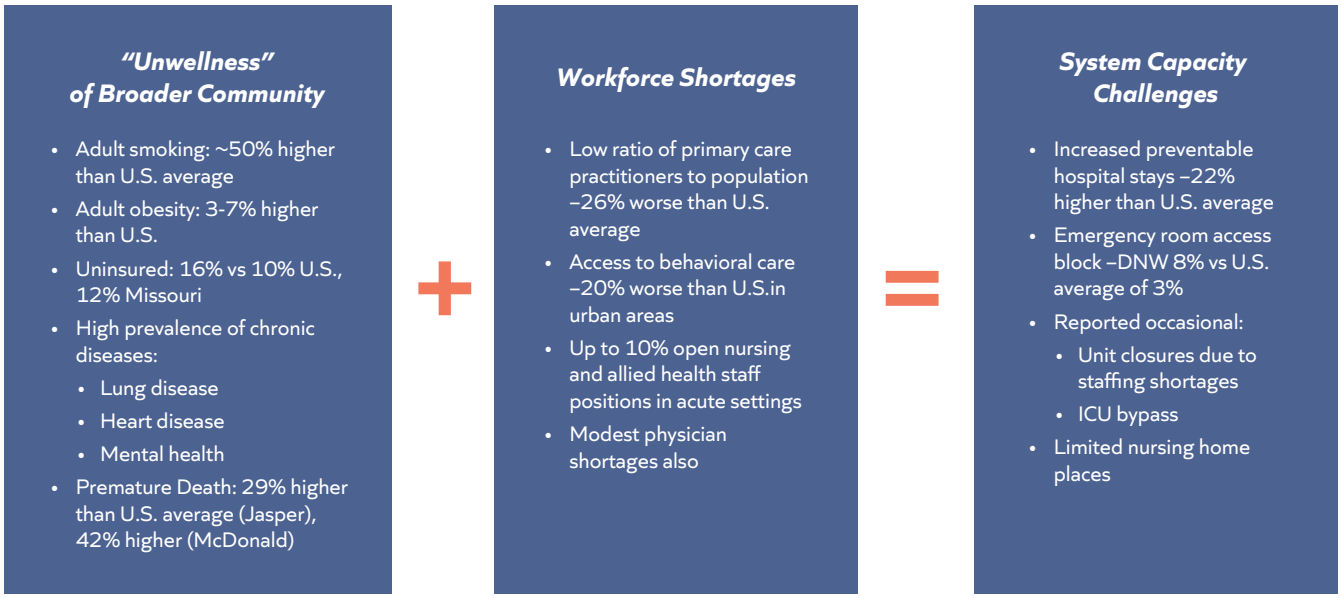
These challenges are further reinforced through feedback from the community. The ACCESS stakeholder outreach asks, "What are the most significant health care needs in the community?" and the most common responses were:

- Mental health care—including medication management, increased availability of psychiatrists and psychologists, and case management services—was the most reported concern of respondents.
- Affordable and accessible dental care for all ages, especially for the uninsured and those with Medicaid.
- Behavioral health/substance use disorder services.
- Healthcare literacy and patient education re: the importance of routine wellness visits, preventive care, health screenings, and managing chronic conditions.

System Capacity Challenges

The combination of a generally "unhealthy" community and the challenges of health service access in the community has resulted in increased demand and greater stress on downstream delivery facilities. The number of preventable hospital stays, as measured by ambulatory sensitive conditions (ASC), is 22% higher than the U.S. average.[13] These are often chronically ill patients who end up in the hospital through a lack of community-based services and education. Increasingly, healthcare payers, both public and private, are penalizing delivery systems through reduced reimbursement for high levels of ASC patients.[14]

Figure 10: Community Health and Workforce Shortages Pose Challenges to System Capacity



Source: TEConomy analysis of University of Wisconsin Population Health Institute's County Health Rankings & Roadmaps 2023.

13 https://www.countyhealthrankings.org/
14 https://www.healthaffairs.org/content/forefront/growth-value-based-care-and-accountable-care-organizations-2022

Importantly, a higher prevalence of illness and workforce limitations put additional capacity stresses on the delivery system. High bed utilization also negatively impacts the ability to treat and admit emergency patients leading to long wait times in the emergency department. One hospital in the region registered an 8% "Did Not Wait" (DNW) among patients in their emergency room, almost 3x higher than the national average. Both hospital systems also reported unit closures due to nursing shortages and ICU's having to go on occasional bypass during periods of heavy patient volume.

Conclusions

As the above situational assessment indicates, the Joplin region is confronted with three strategic opportunities to grow its healthcare and health sciences industry. The first opportunity is to align educational institutions and their offerings with the types of in-demand jobs available in the region's healthcare and health sciences workforce. Second, there is an opportunity for Greater Joplin to develop research and development, innovation, and business development opportunities based on pre-existing and evolving healthcare assets. Lastly, there are opportunities to advance healthcare delivery to meet the region's unique community health challenges. Each of these needs or opportunities connects to economic development—impacting the overall attractiveness and functionality of the business and institutional ecosystem in the region and the economy that depends on it.

Technology will clearly play a critical role in future success. As an important part of the strategic planning process, TEConomy has prepared a summary of major technology disruptors facing the industry (see Appendix 2). Recent advances in information, communication, and clinical technologies are transforming education, health sciences, and healthcare like no other time in human history. The ability to leverage artificial intelligence, advanced analytics, robotics, the Internet of Things (IOT), advanced networking and computing power will be key success factors moving forward.

Based on the situational assessment, a series of interconnected strategies and actions are outlined in the rest of this report that provide a strategic vision for the Greater Joplin region to achieve its ambitions related to growing its healthcare and associated higher education sectors.



III. Strategic Vision

The situational assessment and key findings outlined in the previous chapter form the foundation for developing an integrated strategy—a strategy designed to realize opportunities and leverage evident regional strengths while at the same time addressing challenges and gaps in the economic development ecosystem.

The multiple findings of the research phase of this project lead to three core strategic focus areas for the Joplin region:

- Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.
- Developing research and development, innovation, and business development opportunities based on pre-existing healthcare assets.
- Advancing healthcare delivery to meet the region's unique community health challenges.

Table 3: Three Strategic Foci

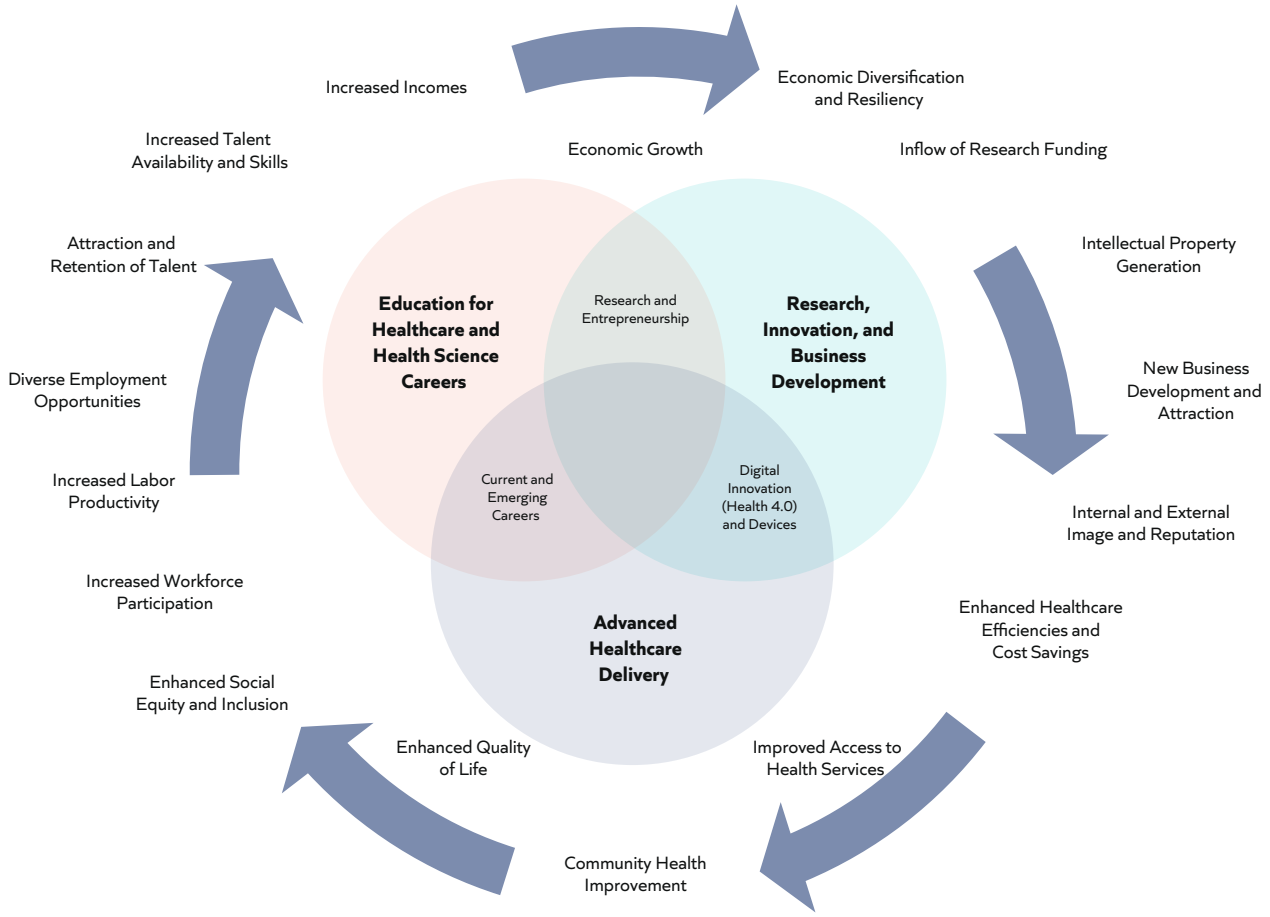
Strategy Focus	Description
1. Education for Healthcare and Health Science Careers	**Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.** There is a strategic need and opportunity to better align the signature higher education assets of the region with the sustained demands of the regional healthcare system for skilled workers. This presents opportunities to enhance economic development along multiple pathways, including growing the existing higher education businesses as an economic driver, reducing personnel acquisition and retention costs across the healthcare system, improving the quality of healthcare services and their productivity, and helping to assure the region educates the necessary personnel to advance digital healthcare and other fast moving opportunity spaces.
2. Research, Innovation and Business Development	**Developing research and development, innovation, and business development opportunities based on pre-existing and evolving healthcare and higher education assets.** Joplin may leverage its distinctive higher education (especially KCU and MSSU), healthcare, and business assets to build a presence in selected R&D and business innovation opportunities. Emerging technologies in healthcare present multiple pathways for new business development and business expansion, especially, but not limited to, the rapidly developing digital health space. As expertise in research spaces builds, this may also become an attractor for existing businesses to consider a Joplin region location.

Strategy Focus	Description
3. Advanced Healthcare Delivery	**Advancing healthcare delivery to meet the region's unique community health challenges and increase workforce availability and productivity.** The healthcare delivery system within the region may become a leader in the development of an advanced healthcare delivery model that integrates technology, innovation, and new workforce skills to build an expanding position in digital health (Healthcare 4.0). This strategy leverages emerging technologies to significantly improve regional healthcare access and outcomes via the use of telemedicine, medical IoT, remote patient monitoring, emerging AI solutions, and other technologies and innovative approaches to care suited to enhancing healthcare in rural and small community settings. Through enhancements to the healthcare system, this strategy will have the additional benefit of increasing patient access to care and overall community health, thereby promoting increased workforce participation and productivity levels across the economy (thereby boosting GDP).

Source: TEConomy Partners, LLC

Evident in Figure 11 is the integrated and overlapping connectivity of key finding areas from the situational assessment to the recommended individual strategies. As will be discussed herein, the strategies stand alone, but they also intersect with and reinforce each other to produce positive strategic outcomes, with a focused eye on achieving economic development for the Joplin region. Figure 11 expands upon the three strategies to show the extensive range of economic development benefits likely to be associated with the implementation of these strategies.

Figure 11: Strategies and Associated Economic and Community Development Impacts



Source: TEConomy Partners, LLC.

As illustrated using a Venn diagram, the multifaceted economic and community benefits associated with the proposed macro-strategy derive from the individual strategies and the natural intersections between them. The strategies are designed to be mutually reinforcing.

Under each strategy area, a series of specific actions are recommended that are rooted in the situational assessment and subsequent discussions. These are outlined within Table 4, collectively presenting a series of 17 total actions.

Table 4: Actions Recommended Under Each Strategy

Strategy 1 Education for Healthcare and Health Science Careers	**Strategy 2** Research, Innovation, and Business Development	**Strategy 3** Advanced Healthcare Delivery
Action 1.1: Expand higher education programs and enrollments to meet anticipated regional health system needs. Anticipate at least a 2x output of students with focus on nursing, allied health, and emerging digital health fields.	**Action 2.1: Build a presence in 3-4 selected areas of research:** • Digital Health Solutions • Population and Community Health • Medical Devices • Health EdTech	**Action 3.1: Primary and Community Care Delivery Network expansion and coordination.** Increase primary and family care networks in the community, including addressing physician gaps, patient navigation, and financial assistance.
Action 1.2: Extend and integrate regional articulation across K-12/CC/Univ systems. Build and expand the high school CAPS programs, creating clear articulation pipelines across strategic career pathways.	**Action 2.2: Seek to establish a signature longitudinal health study connected to regional health improvement and digital health.** Establish as a multistate regional study to engage with NW Arkansas interests in healthy community innovations.	**Action 3.2: Become an early adopter of telehealth and digital health solutions.** Expand use of telehealth, remote patient monitoring, and similar patient-facing digital technologies to significantly improve health service access. Enhance broadband and transportation access to serve the needs of remote and disadvantaged populations.
Action 1.3: Connect higher education degree programs to emerging signature research platforms and encourage student research engagement. Encourage both undergraduate and graduate student research engagement.	**Action 2.3: Establish a small support stipend program for innovative postdocs to advance promising technologies.** Innovative ideas can be imported by offering supported positions (perhaps joint between hospitals and universities) for those with interesting, vetted concepts in signature research areas.	**Action 3.3: Develop shared data architectures and resources to capture and analyze clinical and population health data. Leverage and integrate Telehealth, patient-facing digital health and EMR data to seed research and innovation.** Consider the launch of patient gene sequencing to build a shared resource for research and clinical care advancement.
Action 1.4: Explore collaborative program delivery across regional institutions to leverage faculty and scarce resources. Many new areas of education are multidisciplinary, engaging computer and data sciences, engineering, biosciences, and other disciplines. Skills may exist across institutions to build novel programs.	**Action 2.4: Establish pre-seed fund to help advance IP commercialization and maximize connection building to MO funders and existing support programs.** Seek to establish a moderate $1-2 million pre-seed fund able to provide up to $50,000 seed investments in promising concepts.	**Action 3.4: Implement caregiver support technologies and workforce management systems.** Adopt technologies to improve workforce efficiency, clinical decision making, workforce skills development, and labor productivity. This may include integration of AI-based solutions.
Action 1.5: Expand opportunities for internships and other employer-student connectivity building activities. Seek to maximize the retention of regionally educated students by building early career connections with local employers.	**Action 2.5: Assure availability of incubator space and accelerator/mentor services.** Assure budding entrepreneurs have access to space and support to advance early-stage commercial concepts.	**Action 3.5: Care Model Innovation.** Joint initiative to design, pilot, and implement changes to health roles and delivery models (new roles, flexible scheduling, remote workforce, shared employees/pool/agency). This may include integration of AI-based solutions.
Action 1.6: Form a series of certificate programs, or stackable credential programs, designed for continuing education in fast moving health tech fields. e.g., cybersecurity, telemedicine, EMR analytics, wearable systems, etc.		**Action 3.6: Healthy Community Coalition.** Joint coalition (delivery system, business, government) promoting and funding healthy community initiatives in schools, businesses, and the broader community.

Source: TEConomy Partners, LLC.

Each of the three strategies and their associated actions are detailed in individual chapters that follow.

IV. Strategy 1:

Education for Healthcare and Health Science Careers

Aligning educational institutions and their offerings with the types of jobs available in the region's healthcare and health sciences workforce.

Rationale:

There is a strategic need and opportunity to better align the signature higher education assets of the region with the sustained demands of the regional healthcare system for skilled workers. This presents opportunities to enhance economic development along multiple pathways, including growing the existing higher education sector as an economic driver, reducing personnel acquisition and retention costs across the healthcare system, improving the quality of healthcare services and their productivity, and helping to ensure the region educates the necessary personnel to advance digital healthcare and other fast-developing opportunity spaces.

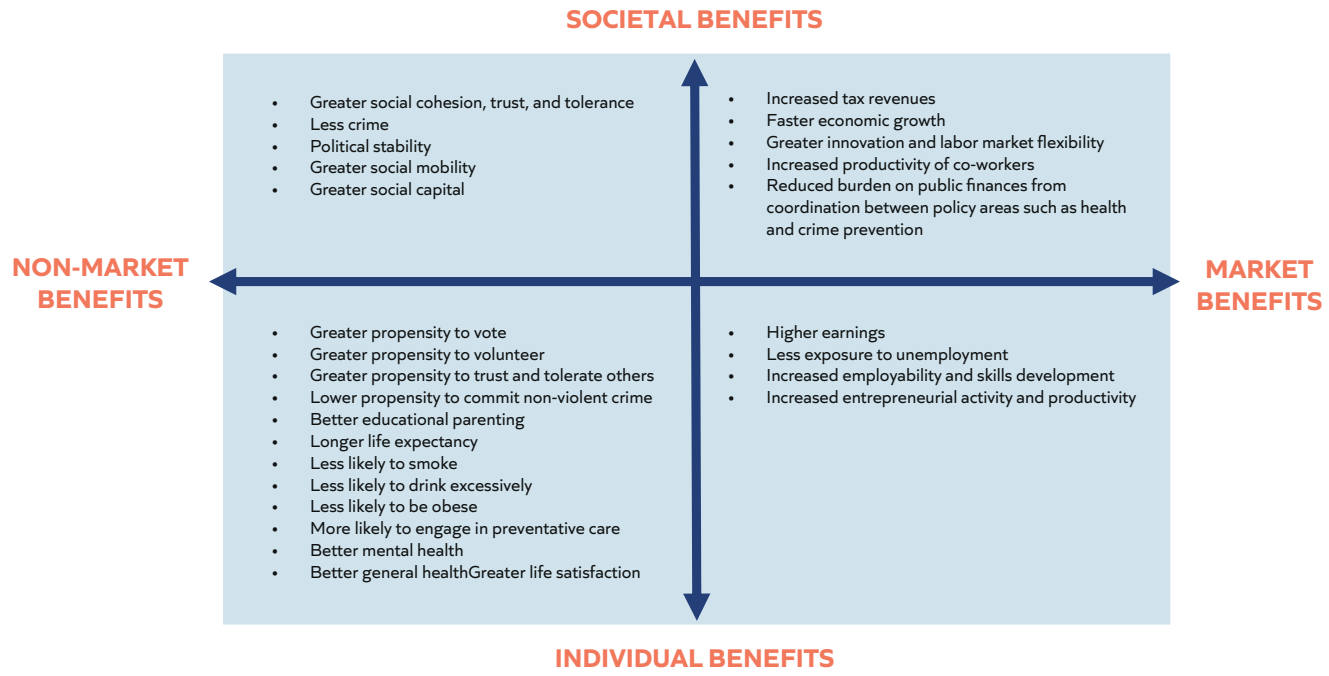
Potential Impacts:

Benefits for the economy may be derived from the following:

- Attraction of student funds from outside the immediate region. Students who are not from the immediate region generate income that leads to higher education being a "traded" industry, expanding regional GDP. Also, retaining regional students in Joplin regional higher education institutions prevents the leakage of education spending that would occur were they to attend colleges or universities outside of the region.
- Having a reliable, local supply of educated human capital able to meet the healthcare sector's diverse workforce needs helps build early connections between students and potential employers (via internships, residencies, job shadowing, etc.) This enhanced connectivity helps healthcare employers reduce recruitment costs and likely results in improved staff retention as the student has previously engaged with the employer and knows what to expect in the work environment.
- Participation in higher education typically exposes students to research and can be a pathway for potential innovation activity.
- Continuing education programs and opportunities for healthcare workers to continue their education to higher levels (for example, a licensed practical nurse continuing their education to achieve an ASN or BSN) increase the skill base of the workforce and provide pathways to higher earnings and associated economic impacts.
- Access to higher education provides individuals with education and skills that will enhance their productivity in the workplace.

Higher education is associated with a multifaceted suite of public and private economic and societal returns. Expanding the higher education sector in Joplin and capturing a significant volume of graduating students for employment within the region will provide wide-ranging positive impacts. A useful overview of these benefits is provided in a paper by the Department for Business Innovation and Skills (BIS) in the UK, which examined the private/social and market/non-market returns of higher education.[15] The BIS authors note that "The report covers only benefits from higher education participation, so that benefits arising from research exploitation, spin-off companies, export earnings through international student fees and spending, and other aspects of higher education are not included." The report provides a useful "two-way taxonomy of benefits, with individual/society as one dimension and market/non-market (or wider) benefits as the other"[16] which is shown in Figure 12.

Figure 12: Categorization of Positive Impact Benefits Associated with Higher Education



Source: UK Department of BU.S.iness Innovation and Skills.

Because the benefits of higher education are so strong, and because health sciences education ties into support of Joplin's large healthcare sector, investing in further education in the region focused on meeting the needs of the healthcare sector represents a high priority strategic imperative.

15 Department for Business Innovation and Skills. 2013. "The Benefits of Higher Education Participation for Individuals and Society: Key Findings and Reports." October 2013, BIS Research Paper No. 146.

16 Ibid

Strategic Actions:

Six actions are recommended for implementation under Strategy 1:

- **Action 1.1**—Expand higher education programs and enrollments to meet anticipated regional health system needs.
- **Action 1.2**—Extend and integrate regional articulation across K-12/community college/university systems. Build and expand the high school CAPS programs, creating clear articulation pipelines across strategic career pathways.
- **Action 1.3**—Connect higher education degree programs to emerging signature research platforms and encourage student research engagement. Encourage both undergraduate and graduate student research engagement.
- **Action 1.4**—Explore collaborative program delivery across regional institutions to leverage faculty and scarce resources. Many new areas of education are multidisciplinary, engaging computer and data sciences, engineering, biosciences, and other disciplines. Skills may exist across institutions to build novel programs.
- **Action 1.5**—Expand opportunities for internships and other employer-student connectivity-building activities. Seek to maximize the retention of regionally educated students by building early career connections with local employers.
- **Action 1.6**—Form a series of certificate programs, or stackable credential programs, designed for continuing education in fast-moving health tech fields. (e.g., cybersecurity, telemedicine, EMR analytics, wearable systems, etc.)

Details for each of these recommended actions follow:

Action 1.1—Expand higher education programs and enrollments to meet anticipated regional health system needs.

Expand programs to meet key health workforce gaps and broaden workforce supply chain. Anticipate at least a 2x output of students with focus on nursing, allied health, and emerging digital health fields.

Workforce issues, particularly those related to training, recruitment, and retention of staff, emerged as a top concern in the analysis. Even post-pandemic, the recruitment of nurses and other clinical staff and allied health professionals has been challenging for Joplin area hospitals and health care practices. Local delivery system management has responded by offering higher wages, bonuses, and employment of migrant staff (e.g., traveling nurses, which command significantly higher compensation rates), increasing the cost of operating the healthcare system. Despite these efforts, staff levels for critical health system personnel remain lower than targets.

Shortages are being experienced across a broad range of healthcare positions, including, but not limited to: nurses (LPN, RN), nurse assistants, surgical technicians, respiratory therapists, medical laboratory technicians, radiology and imaging (CT) technicians, sterile processing technicians, pharmacy technicians, and housekeeping personnel. The scope of the challenge is illustrated by Figure 7 in the situational analysis, which provides data for 2017 through 2022 for the supply and demand of selected clinical positions in the MOKAN region. Across this six-year period, for example, there was a shortfall in production of 2,038 registered nurses (with supply only meeting 49.2% of potential demand), equal to a 334 annual shortfall. Significant shortfalls are shown for physicians and allied health positions also. These data reveal a significant supply and demand mismatch across multiple important clinical job functions.

The region does benefit from the presence of multiple institutions engaged in the education and training of students for healthcare careers. The primary challenge is that the volume of graduates from these programs is insufficient to meet demand—and the high demand for healthcare workers nationwide makes it challenging to retain all graduates (or recruit-in graduates from outside of the region).

There is a clear need for action to be taken to better align educational supply to the current and future demand for an educated and skillful healthcare workforce. Based on the input from interviews, nursing talent represents the largest pressing need.

Nursing is a career that provides job opportunities across a range of progressively higher education levels. Figure 13, produced by nurse.org, summarizes from top to bottom the progression of higher levels of nursing qualification and the education, salaries (national), and growth prospects associated with them.

At the entry level are Certified Nursing Assistants (CNA) who help patients with activities of daily living and other healthcare needs under the direct supervision of a Registered Nurse (RN) or Licensed Practical Nurse (LPN).

Missouri Southern State University

MSSU is a critically important institution working to solve the workforce challenges facing healthcare in the region. The University is already engaged in extensive educational programs that bring high quality education to students studying healthcare and life science focused majors. Indeed, Missouri Southern has the greatest number of undergraduate programs in these areas among all public universities in Missouri. The delivery of healthcare and life sciences education will be further enhanced by forthcoming investment on the MSSU campus in the Health Science Innovation Center, a $37.5 million facility set to open in 2026.

Next come Licensed Practical Nurses (sometimes termed Licensed Vocational Nurses) who work in hospitals, nursing homes, and long-term care facilities and are typically responsible for more basic kinds of patient care and comfort measures. Usually, they work under the guidance of an RN or MD.

A fully qualified "nurse" is found at the Registered Nurse (RN) level. These positions require either an Associate Degree in Nursing (ADN) or a Bachelor of Science in Nursing (BSN). "A registered nurse administers hands-on patient care in a variety of settings, including hospitals, medical offices, nursing homes, and other facilities. RNs work with physicians and other members of the health care team to provide the best course of treatment possible. They also help to educate patients and their families about health issues."[17]

Nurses may also choose to continue their education, undertaking masters or doctoral degree training to achieve Advanced Practice Registered Nurse qualifications. It is this level of training that is required for Nurse Practitioners and for certain nursing specialties such as Nurse Anesthetist or Clinical Nurse Specialist. Master's and doctoral degrees may also be pursued by nurses seeking qualifications for nursing administration positions or as nurse educators.

Multiple colleges and universities provide nursing and allied health professional higher education programs within the MOKAN region. Appendix 3 provides details on nursing-focused degree and allied health degree outputs. In terms of nursing, Pittsburg State University produces the highest number of graduates (168), followed by Crowder (140), Northeastern Oklahoma A&M (69) and MSSU (30). Notable in these data is the absence of advanced practice registered nurse degrees—an area that may well present opportunities for MSSU to expand its degree offerings. For Joplin, and its economic development, the expansion of nursing degree programs at MSSU is a primary need. Programs at MSSU provide robust opportunities for students to connect with the large Joplin-based hospitals and other local clinical service providers.

17 https://nurse.org/education/nursing-hierarchy-guide/

In registered nursing, Figure 7 shows a typical annual shortfall in regional higher education output of 334 graduates. For MSSU alone to meet this demand would require an increase in BSN student volume of 1,237% (moving from an output of 30 graduates to 401). Clearly, this would be a very heavy lift and quite unrealistic. Indeed, for MSSU to produce that many nursing students would require it to be one of the largest colleges of nursing in the nation. Development of a college of nursing able to accommodate that volume of students would mandate a very substantial increase in the nursing faculty at MSSU and the supply of expanded space and other infrastructure required to accommodate such a student increase. It is not realistic to anticipate that MSSU can solve the nursing shortage for the region on its own, but it should receive significant emphasis as a key Joplin-based contributor to the solution, working towards the production of 90-100 nursing graduates a year as soon as faculty recruitment and the Missouri State Board of nursing allows.

MSSU can also be seen to be the clear leader in the provision of allied-health-focused higher education, and expansion of its programs in this regard is encouraged given the supply/demand imbalance shown in the situational analysis (whereby higher output in most allied health degrees sees a high likelihood of regional absorption). Any expansion of nursing graduation from Pittsburg State would also be helpful, and PSU has recently opened expanded nursing education facilities and a simulation hospital that enable the university to expand from cohorts of 90 students to accommodate 120.[18]

Crowder College is an exceptionally important contributor to nursing education for the region, with the college noting that it places the most RNs into the workforce in the region among all colleges and universities. Indicative of demand, and the quality of education and training, ADN graduates who

Figure 13: Levels of Nursing Education

	Education	Career & Salary Opportunities
CNA Certified Nursing Assistant	• 4-12 week program • CAN certification exam • Earn a state license	CNA Salary: • $30,290 per year • $14.56 per hour Job Outlook: • 8% growth
LPN Licensed Practical Nurse	• 1-year program • NCLEX-PN licensing exam • Earn a state license	CNA Salary: • $48,070 per year • $23.11 per hour Job Outlook: • 9% growth
RN Registered Nurse	Associate Degree in Nursing (AND) • 2-3 year program • NCLEX-RN Bachelor of Science in Nursing (BSN) • 4-year program • NCLEX-RN	Registered Nurse Salary: • $77,600 per year • $37.31 per hour Job Outlook: • 9% growth
APRN Advanced Practice Registered Nurse	Master of Science in Nursing (MSN) • 2-3 year post-graduate program • APRN roles must also complete in-person clinical hours and pass a certification exam in the area of specialization Doctor of Nursing Practice (DNP) • 3-4 year post-graduate program • Requires capstone DNP project	Nurse Practitioner (NP) • $120,680 per year Clinical Nurse Leader (CNL) • $104,107 per year Clinical Nurse Specialist (CNS) • $106,407 per year Certified Registered Nurse Anesthetist (CRNA) • $195,610 per year Certified Nurse Midwife (CNM): • $112,830 per year
Non-Clinical Specialties	• MSN • DNP • PhD	Nurse Administrator • $101,340 per year Nursing Informaticist • $79,720 per year Nurse Educator • $77,440 per year Nurse Researcher • $99,372 per year

Source: Nurse.org

18 https://www.pittstate.edu/gorillaconnection/2023/04/construction-wraps-up-at-nursing-schools-simulation-hospital-.html

seek immediate nursing employment have 100% placement rates. Crowder College also has articulation agreements in place that facilitate CNA certificate and qualifying practical nurses to enter its ADN program and has articulation agreements with BSN programs in place for its ADN graduates. Both Crowder College and Missouri Southern State University are important Missouri institutions contributing to solving the regional nursing challenge.

Announced Facilities Under Consideration for the New MSSU Health Sciences Building

- Simulated hospital with acute care, labor and delivery, emergency care, and examination rooms
- Skills lab
- Radiological technology lab
- Cadaver lab

Working in Joplin's favor is the forthcoming investment in a new $35.7 million, circa 70,000 square foot health sciences building on the MSSU campus. The review of market conditions suggests that this building should be predominantly focused on nursing education, although the envisioned facilities (see sidebar) would also be able to be used to support education programs in multiple allied health degree programs. One of the challenges that will need to be addressed in parallel is maximizing the opportunities for the nurses-in-training to receive practical training (practicums) within regional hospitals and other healthcare settings.

While MSSU is the primary focus of this action for expanding educational programs for the region, other institutions should be encouraged to expand their offerings, especially, but not limited to, in nursing (at the pre-baccalaureate certificate and associate level). Articulation agreements should be a priority, enabling certificate and pre-baccalaureate program courses to transfer into the MSSU and other regional BSN and ADN programs (see Action 1.2).

Existing Stakeholders and Relevant Programs:	Supply Side: • MSSU (Joplin) • KCU Colleges of Medicine and Dentistry (Joplin) • Franklin Technology Center (Joplin) • Crowder College (Neosho, Pineville, Nevada, and Cassville) • Missouri State University–Springfield • Cox College (Springfield) • Ozarks Technical Community College (Springfield) • Pittsburg State University (Pittsburg, KS) • Northeastern Oklahoma A&M College (Miami, OK) • Regional high schools Demand Side: • Freeman Health System • Mercy Health System • Private clinical practices • Nursing and long-term care facilities
Lead Implementing Organizations:	• MSSU • Crowder College • Freeman Health System • Mercy Health System
Prioritization:	High
Timing:	Short-term

Potential Action Components:

- Continuously define and forecast health delivery system human resource requirements over time (headcount, roles, skills) based on shared input from key delivery employers (Freeman, Mercy, Access, et al). Define a delivery system workforce resource "ask" (forthcoming year, 3- year forecast, 5-year forecast) for key roles across the region.
- Develop comprehensive and shared pipeline view across regional institutions to guide ongoing program planning and development.
- A core challenge to be addressed is the recruitment of nursing faculty. Such faculty are in high demand and relatively short supply nationally.[19] Compensation packages will need to be generous to attract new faculty to Joplin, and it may be important to provide faculty with collaborative faculty practice arrangements with the hospital systems to help meet compensation demands.
- MSSU, perhaps in collaboration with KCU, will need to structure a program to allow masters students in nursing to study for a doctorate in nursing practice or a PhD in nursing to provide an expanded interregional pipeline of faculty candidates.

Examples:

Multiple colleges and universities have established new or significantly expanded nursing programs in recent years. Some examples include:

- Providence College in Rhode Island established a new school of nursing. It is constructing a new 10,000 sq. ft. building to accommodate the program and intends to cap enrollment at 75 students per year.
- The University of Northern Iowa is starting a new program in nursing, with four-year BSN degrees. It anticipates enrollment of 100 students per year.
- Merrimack College in Massachusetts inaugurated its School of Nursing and Health Sciences with its first class of nursing students in 2019. It opened a 20,000 sq. ft. nursing education center in January 2020 and has 11 faculty members. Its first graduating class was 38, but freshman enrollment for the BSN has now increased to greater than 100.

19 The challenge noted by the American Association of Colleges of Nursing (AACN). The ACCN notes that:

- "According to AACN's report on 2021-2022 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing, U.S. nursing schools turned away 91,938 qualified applications from baccalaureate and graduate nursing programs in 2021 due to an insufficient number of faculty, clinical sites, classroom space, clinical preceptors, and budget constraints. Most nursing schools responding to the survey pointed to faculty shortages as a top reason for not accepting all qualified applicants into their programs.
- According to a Special Survey on Vacant Faculty Positions released by AACN in October 2022, a total of 2,166 full-time faculty vacancies were identified in a survey of 909 nursing schools with baccalaureate and/or graduate programs across the country (84.4% response rate). Besides the vacancies, schools cited the need to create an additional 128 faculty positions to accommodate student demand. The data show a national nurse faculty vacancy rate of 8.8%. Most of the vacancies (84.9%) were faculty positions requiring or preferring a doctoral degree."

Source: https://www.aacnnursing.org/news-data/nursing-faculty-shortage

Action 1.2—Extend and integrate regional articulation across K-12/CC/Univ systems. Build and expand the high school CAPS programs, creating clear articulation pipelines across strategic career pathways.

After higher education, many local graduates seek employment outside of the region. Given the amount of time, effort, and expense required to recruit clinical staff from outside the region, it makes sense to maximize the placement of local candidates by aligning and integrating candidate pipelines with local secondary and higher education institutions. The MOSO Caps initiative is a great local example of identifying and incentivizing local candidates to be educated, work, and stay in the Joplin Region.

The Centers for Advanced Professional Studies (CAPS) in Missouri represent innovative initiatives that engage high school students in a career-oriented professional culture, using industry-standard tools and mentorship by employers to engage in problem-solving and applied learning. Students participating in CAPS earn high school credit and transferable college credit. **The transfer of credits facilitated by articulation agreements is an intensely important component for encouraging local high school students to stay in the region for their higher education.** Articulation agreements are formal agreements between two or more educational institutions that outline the transfer policies for specific courses at one institution into academic programs or degrees at another. These can be high school courses (including the well-known advanced placement courses) transferring to colleges or articulation agreements between community colleges and four-year colleges for credit transfer. **What will be most important for the Joplin region is assuring a network, or shared system, of articulation agreements be established between all regional high schools, the community college system, and MSSU for coursework relevant to healthcare college degrees.** Doing so will require the development of a shared vision between the high schools and colleges, setting out clear pathways for education articulation that provide opportunities for local students to pursue local healthcare careers.

Best practices suggest that:

- A joint committee be established between area high school leaders, the community colleges, and MSSU senior leadership to develop, oversee, and regularly review the implementation of the agreement(s).
- Faculties at respective institutions, together with major healthcare system employers, should be convened in workshops to ensure the development of an efficient shared curriculum and alignment of the curriculum to professional and career standards. Periodic review should occur to evaluate the curriculum, together with the implementation of a feedback system that will enable refinements to be made as gaps, issues, needs, or opportunities are observed.
- The articulation program should have a student-centered structure that works to spark initial student interest and then provides proactive counseling for students to help them understand and navigate the courses and connectivity across institutions that will get them to Joplin regional healthcare careers. Ideally, students will have access to regional articulation counselors who will stay engaged with them as a single point of contact across their educational pathway.
- The agreements need to be transparent, clearly communicating and delineating the educational pathway options and the specific course credits that transfer. These agreements need to be long-term, assuring that changes are not made that undercut the program or negate the transfer of credits.
- The program needs to be actively promoted to high school students and their parents, clearly communicating the advantages of the program in terms of providing cost-efficient and time-efficient paths to secure credentials for in-demand local careers.



Existing Stakeholders and Relevant Programs:	• Regional K-12 school districts, especially at the high school level • Crowder College • MSSU
Lead Implementing Organizations:	• Purpose formed committee of stakeholder institutions
Prioritization:	High
Timing:	Short-term

Potential Action Components:

- Extend/expand MOSO CAPS program-like initiatives to expand visibility of health careers in secondary education and promote student enrollment for post-secondary, bachelor's, and advanced degrees.
- Work closely with delivery system recruitment teams to provide employment "landing pad" for local students through local internships, practicums, and residencies.
- Provide or expand student-facing resources to facilitate career planning, education enrollment and job placement.

Examples:

There are many examples of innovative articulation programs, and multiple pathways that have been developed for achieving articulation goals. Some examples include:

Individual Institutional Partnerships—Comprising agreements between specific high schools and individual colleges that create unique pathways for students.

Dual Enrollment Programs—Allowing high school students to take college-level courses for credit. For example:

- **Running Start in Washington State:** This program enables high school juniors and seniors to take college courses at Washington's public community, technical colleges, and some four-year colleges and universities.
- **Middle College High Schools:** A network of high schools that are located on community college campuses and allow students to take college courses while still in high school.

Career and Technical Education (CTE) Agreements—Whereby students earn college credits for technical courses taken in high school. For example:

- **Tech-Prep Programs:** These are nationally established programs where students can earn college credits for technical courses taken during high school.
- **Career Pathways in Oregon:** Which established a statewide framework for high school students to earn college credit in career and technical education courses. It began in 2004 with five colleges. In 2006, the initiative expanded to 11 colleges and scaled to all 17 community colleges in Spring 2007.

Early College High Schools—Comprising partnerships between high schools and colleges where students can earn both high school and college credits simultaneously. For example:

- **P-TECH (Pathways in Technology Early College High School):** A program where students can earn a high school diploma and an industry-recognized associate degree.
- **Early College High School Initiative:** Supported by the Bill & Melinda Gates Foundation, this initiative has sponsored the development of early college programs nationwide. The Rochester Early College International High School and Monroe Community College Partnership is an example of this. The NY collaboration allows students to earn college credits while in high school.

Statewide Articulation Agreements—Comprising large-scale, state-organized programs. Examples include:

- **The North Carolina High School to Community College Articulation Agreement** is an agreement between the North Carolina Department of Public Instruction and the North Carolina Community College System.
- **Ohio's Transfer to Degree Guarantee:** Allows students to transfer credits earned in high school to any Ohio public college or university.
- **Florida Statewide Articulation Agreement.**

Action 1.3—Connect higher education degree programs to emerging signature research platforms and encourage student research engagement. Encourage both undergraduate and graduate student research engagement.

As discussed under Strategy 2 in the next chapter, there is a need for the Joplin region to become more engaged in research in higher education and healthcare to:

1. Bring in research dollars from outside of the economy (providing economic stimulus).
2. Provide opportunities for students to improve their education through research engagement.
3. Provide a base platform for innovation (that may be potentially commercializable) and associated student-driven entrepreneurship.

Action 2.1 in the following chapter outlines several areas of potential research focus that would likely be a fit for the assets and interests of the healthcare and higher education sectors in the Joplin region. As the research programs are developed, it will be important to connect education programs to these programs, providing a flow of students engaging in research at both undergraduate and graduate levels. Student engagement in research is both educationally beneficial and provides a support workforce for research faculty and/or clinical researchers. This also provides a pathway forward for personnel to continue to hold research positions post-graduation and may be beneficial in terms of generating student derived innovations (not just faculty innovations) with economic development potential.

Existing Stakeholders and Relevant Programs:	• KCU • MSSU • PSU • Crowder College
Lead Implementing Organizations:	• KCU • MSSU
Prioritization:	Medium
Timing:	Mid-term

Potential Action Components:

- Because MSSU is predominantly an undergraduate-focused institution, it will be important to put in place initiatives that encourage undergraduate engagement in research. Ideally, a model could be developed similar to that used in the Undergraduate Research Scholars Program (URS) at the University of Wisconsin–Madison, which provides first and second-year students with opportunities to earn credit for participating in research with UW-Madison faculty. By building early engagement in research, students will have more opportunities to engage in innovation across their undergraduate education and may be more encouraged to continue their studies at a graduate level.
- To keep students engaged in the community and the universities during the summer, a series of grant-supported summer research programs should be developed, linked to each of the research platforms (see Action 2.1), that will provide students with an intensive research experience.

Examples:

Student entrepreneurship during undergraduate education and in graduate school is a focus of multiple innovative initiatives across U.S. colleges and universities. The Arrowhead Center programs at New Mexico State University are well-recognized as an example, but there are many others, such as:

- The Lassonde Entrepreneurship Institute at the University of Utah.
- The Baiada Institute for Entrepreneurship at Drexel University.
- The Garage at Northwestern University.
- The Zell Lurie Institute for Entrepreneurial Studies and the TechArb Student Venture Accelerator at the University of Michigan.
- eLab at Cornell University.

Action 1.4—Explore collaborative program delivery across regional institutions to leverage faculty and scarce resources. Many new areas of education are multidisciplinary, engaging computer and data sciences, engineering, biosciences, and other disciplines. Skills may exist across institutions to build novel programs.

Although institutions of higher education within a region may compete for students, funding, faculty, and other resources, they may also choose to combine their respective strengths to develop innovative programs responsive to regional needs. Many areas of science and emerging technology development are inherently multidisciplinary, and instead of competing there may be opportunities for regional colleges and universities to develop collaborative degree programs or alternative credential (see Action 1.6) programs. Fast emerging areas of activity, for example the Internet-of-Things, require expertise in engineering, computer science, statistics, and data analytics, etc. for their development and deployment—academic disciplines that may not be sufficiently covered at an individual institution. In the MOKAN region, for example, MSSU has significant coverage of allied health areas, Pittsburg State has engineering, and KCU has medicine—but none covers all three. By working together, institutions can bring their respective strengths to the table and stand-up programs responsive to emerging demands.

Areas likely to experience increasing demand that may lend themselves to multi-institutional collaborations might include:

- Telemedicine and rural health
- Health informatics and clinical data (genotype and phenotype) analytics
- Patient remote monitoring and wearable health technologies
- Medical device innovations and development

This is somewhat complicated in the MOKAN region by the fact that colleges and universities are a mix of public (e.g., MSSU and Crowder College) and private (e.g., KCU) institutions, and the public institutions in the region exist in multiple states (e.g., PSU in Kansas, MSSU and Crowder in MO, Northeastern Oklahoma A&M in OK). Governance boundaries can make collaborations more complex but should not be an insurmountable barrier. There are multiple examples of

public and private universities developing shared programs. For example, Carnegie Mellon University (private) and the University of Pittsburgh (public) operate a joint graduate degree program in computational biology that leverages the respective institutional strengths in computer science and biomedical sciences.

Existing Stakeholders and Relevant Programs:	• KCU • MSSU • PSU • Crowder College
Lead Implementing Organizations:	• KCU • MSSU
Prioritization:	Medium
Timing:	Mid-term

Potential Action Components:

- Form a working group to consider and prioritize fast-growing multidisciplinary areas that link especially to digital healthcare technologies. This group should comprise senior college leadership with a particular emphasis on the following disciplines:
  - Engineering (primarily mechanical, electrical, and computer engineering)
  - Computer science
  - Advanced analytics and statistics
  - Clinical medicine and nursing.
- Convene a focus group comprising Freeman and Mercy surgeons who are frequent users of medical devices (most likely to be in orthopedics and interventional cardiology). Discuss interests in providing advice and conceptual concepts to a multidisciplinary program and device innovation initiative formed by regional colleges and universities.
- Inventory and canvas local precision manufacturing firms and software development/IT companies to categorize their capabilities and interests in engaging in medical innovation activities in collaboration with newly established college or university multidisciplinary programs.
- Examine opportunities for industry representatives and clinical specialists to be adjunct faculty within multidisciplinary programs.

Examples:

The Carnegie Mellon University and University of Pittsburgh example, cited above, is not the only such collaborative program between universities with respective specializations that combine to build multidisciplinary programs. Another prominent healthcare-oriented example is the partnership between the Georgia Institute of Technology and Emory University which brings together the medical expertise of Emory's School of Medicine with Georgia Tech's engineering and computational sciences strengths. Also in the biomedical engineering space is the development of the Joint Department of Biomedical Engineering operated by North Carolina State University (known for its engineering) and the School of Medicine at the University of North Carolina–Chapel Hill.

Action 1.5—Expand opportunities for internships and other employer-student connectivity building activities. Seek to maximize the retention of regionally educated students by building early career connections with local employers.

Among the most effective ways to retain talent graduating from regional colleges and universities is to work far in advance of a student's graduation to build connections and relationships with local employers. When internships, practicums, and other career-facing opportunities are provided to students, they experience first-hand the relevance of their education to application in the workplace and are exposed to potential future employers—thereby building connections that can enhance their local employment interests and opportunities. For careers in healthcare, internships, job shadowing, and other connectivity-building activities are particularly important in helping students or potential students understand how their education will connect to real-world applications and opportunities. Such experiences carry multiple advantages for workforce development and local economic development. Most notably they are likely to promote:

- Retention of local talent by building pre-graduation connectivity and relationships between students and employers.
- An increase in the effectiveness and work-readiness of graduates through building real-world employment experiences that complement the more theoretical or conceptual education of their college coursework.
- Improved dialog between the education sector and employers, as internships are established and discussions take place over program design and outreach.
- An ability for employers to temporarily supplement their workforce, take on projects that they may otherwise not have pursued, and gain from the fresh perspectives of students.

From an employer standpoint it is important that interns and others engaged in work experience programs not simply be viewed as "cheap labor." The experiences need to be set-up to be win-win for both the student and the employer, which ideally requires that:

- Internships are established with well-defined goals both in terms of outcomes for the employer and valuable knowledge and experience building for the student.
- Students should receive onboarding instructions and be assigned a mentor or supervisor who will answer questions, provide guidance, and ensure a two-way flow of feedback.
- Opportunities are provided for interns to rotate through multiple departments or work teams, thereby providing a well-rounded overview of the types of career opportunities the employer provides.
- Interns are given opportunities to work on meaningful projects or tasks rather than simply assigned "grunt work" or menial tasks. They need to feel needed, wanted, and respected and see meaning in their assigned work.
- Feedback from the students is encouraged to ensure that they can provide perspectives on what they are finding most valuable and educational in the experience and to secure ideas on how to improve the experience and value provided by the internship.
- Periodic communication should be maintained between the internship provider and the student after the internship is concluded—serving to sustain the relationship and keep the employer front-of-mind with potentially in-demand talent.

Existing Stakeholders and Relevant Programs:	• Joplin Area Chamber of Commerce • Regional hospital systems • MSSU • Crowder College
Lead Implementing Organizations:	• Joplin Area Chamber of Commerce • MSSU
Prioritization:	High
Timing:	Short-term

Potential Action Components:

- The Joplin Area Chamber of Commerce, together with the health systems, MSSU, and Crowder Community College should jointly work on establishing a web-based internship platform similar (but on a smaller scale) to the best practice example developed and operated by Ascend Indiana (see example below). This will allow students to build a profile of their interests, see available internships, and be able to apply online for the available internships.

Example: Ascend Indiana

Ascend Indiana is an initiative of the nonprofit Central Indiana Corporate Partnership, headquartered in Indianapolis. Ascend helps both employers and students connect for internships and full-time positions. Using a robust online platform, students can register with Ascend for free, building an online profile of their education and interests and being connected to internship opportunities that fit these. The students who sign up receive proactive advice and mentorship from Ascend staff and can apply for internships directly through the Ascend online platform. The Ascend platform also works proactively for employers, with participating employers able to access the online profiles of the students' seeking internships or employment. Almost every employer of size in Indiana is a participant in Ascend, as are most colleges and universities. Early funding for Ascend Indiana came from a $5 million grant from the Lilly Endowment which supported the first three years of operations. Multiple other philanthropies have provided financial support together with the Indiana Department of Workforce Development.

Action 1.6—Form a series of certificate programs, or stackable credential programs, designed for continuing education in fast moving health tech fields (e.g., cybersecurity, telemedicine, EMR analytics, wearable systems, etc.).

In recent years, the concept of "stackable credentials" has received increasing attention in education and career development circles. Particularly in fast-moving technology fields, where skills and credentials can evolve quickly, the concept of stackable credentials and digital badges has received quite rapid acceptance. Basically, these approaches enable students to earn meaningful credentials through relatively short and affordable courses, and these then can be joined (or "stacked") to further a student's career prospects and credentialing.

Nursing may be considered one of the original pioneers of "stackable credentials" whereby there is a progression of qualifications available starting with Certified Nursing Assistant, onwards to Licensed Practical Nurse, to Registered Nurse, and Advanced Practice Nurse.

This approach to education is modular and credential-focused and, therefore, practical in application. It also leads to credential earning with relatively short time horizons and is generally affordable. Combined with articulation agreements for courses (see Action 1.2) these can also be integrated into degree-earning programs.

The approach is particularly relevant for building workforce development programs for fast-moving digital health careers (see Actions 3.2 and 3.3). These careers require specific skills in the understanding and use of digital technologies, software, and analytical techniques that lend themselves well to a stackable credential/digital badge approach to learning and credentialing. Because they are often developed with input from industry, the earned credentials typically align well with industry needs and are well-suited to engagement in continuous, career-spanning education and skills enhancement for the workforce—serving to maximize the productivity and capabilities of the workforce.

Existing Stakeholders and Relevant Programs:	• Crowder College • MSSU • PSU • Regional hospital systems and community health organizations
Lead Implementing Organizations:	• Crowder College
Prioritization:	High
Timing:	Short-term

Potential Action Components:

Creating digital badge programs for healthcare-facing career skills should be undertaken as a collaborative effort between stakeholder organizations, and it is important that the developed credentials be accepted by each of the major healthcare sector employers in the region. It is recommended that the following actions be undertaken with a focus on the digital health areas discussed under Actions 3.2 and 3.3:

- Engage stakeholders in the joint design and conduct of a needs assessment to identify the areas of education and skills that the healthcare system requires to meet emerging digital health demands. Areas likely to be considered may include, but not be limited to telemedicine proficiency, health data analytics, mobile health systems, and healthcare cybersecurity.
- Evaluate the alignment of identified needs with those of existing professional standards to ensure any digital badge credentials work to meet accepted standards.
- Examine existing digital badge programs or stackable credential programs currently in operation in the United States that may meet the goals identified in the needs assessment and align with identified standards (if applicable). Discuss the success of these with various operators of the programs and seek to duplicate best practices proven to be successful.
- Develop an initial pilot program focused on an area of key need identified by participating stakeholders and ensure there is a credential stack that enables multiple credentials to be earned. Commit to long-term recognition of these credentials to assure sustained value for students. It is imperative that the badge credentials are recognized by the healthcare industry and other relevant sectors as valid indicators of skills and competencies.
- Pursue opportunities for the badge credentials to articulate as credits for enrollment in regional higher education institutions.

The stakeholder organizations may also wish to consult with a digital credential management organization, such as Credly by Pearson or Badgr, which can advise on digital credentialing approaches and provide secure hosting services for digital credentials. Credly can also advise stakeholders regarding existing digital credentials that may serve Joplin's needs or be adapted to do so. LinkedIn Learning (formerly the Lynda.com platform) is also a good source for examining short-course options.

Examples:

Multiple case studies are included in a very useful summary of digital badges and their application to higher education provided in the October 2021 publication of J. Rodenfels at the University of North Carolina–Chapel Hill titled "Badging Usage in Higher Education."[20]

The document contains case studies in an emerging program in digital badging at the University of Denver, an established initiative at the University of Buffalo, and an advanced program in digital badge implementation at Northeastern University.

20 Available online at: https://dll.unc.edu/wp-content/uploads/sites/1206/2021/11/Digital-Badge-Overview.pdf

V. Strategy 2:

Research, Innovation, and Business Development

Developing research and development, innovation, and business development opportunities based on pre-existing and evolving healthcare and higher education assets.

Rationale:

For the Joplin Region to take full advantage of the economic development opportunities that exist due to the presence of its large hospitals and institutions of higher education, there is a need to emphasize the growth of research, leading to innovation and business development. This requires developing an ecosystem of support services across various dimensions. As Figure 14 shows, the Joplin Region has an emerging healthcare and health sciences industry ecosystem—meaning that while it has a well-established patient-serving clinical care community and a higher education presence of relevance, it has limited research activity (leading to innovations) and minimal presence of a traditionally defined commercial bioscience or medical device industry. A central goal for the Joplin region is to enhance elements of the healthcare and health sciences ecosystem to help advance the business ecosystem from an emerging status to one that is more mature and advanced.

Figure 14: Characteristics of the Various Stages of Healthcare and Health Sciences Cluster Development



Characteristics of Development			
	Healthcare providers are mainly focused on treating patients.	Healthcare providers are participating in research and development.	Healthcare providers are clinical excellence hubs in research & practice.
	Education providers are mainly focused on serving local industry.	Education providers serve local industry with pockets of excellence.	Education providers are viewed by industry as a gold standard in training.
	Biosciences industry presence is minimal.	Biosciences industry is growing or established.	Biosciences industry is a regional strength, with numerous businesses.
	Healthcare entrepreneurship and access to capital is limited.	Healthcare entrepreneurship and access to capital is supported.	Healthcare entrepreneurship and access to capital is thriving and robust.
	Availability of talent is very difficult across business type.	Availability of talent remains difficult, but workers are generally available.	Talent is readily available and easy to identify and leverage for growth.

Source: TEConomy Partners, LLC.

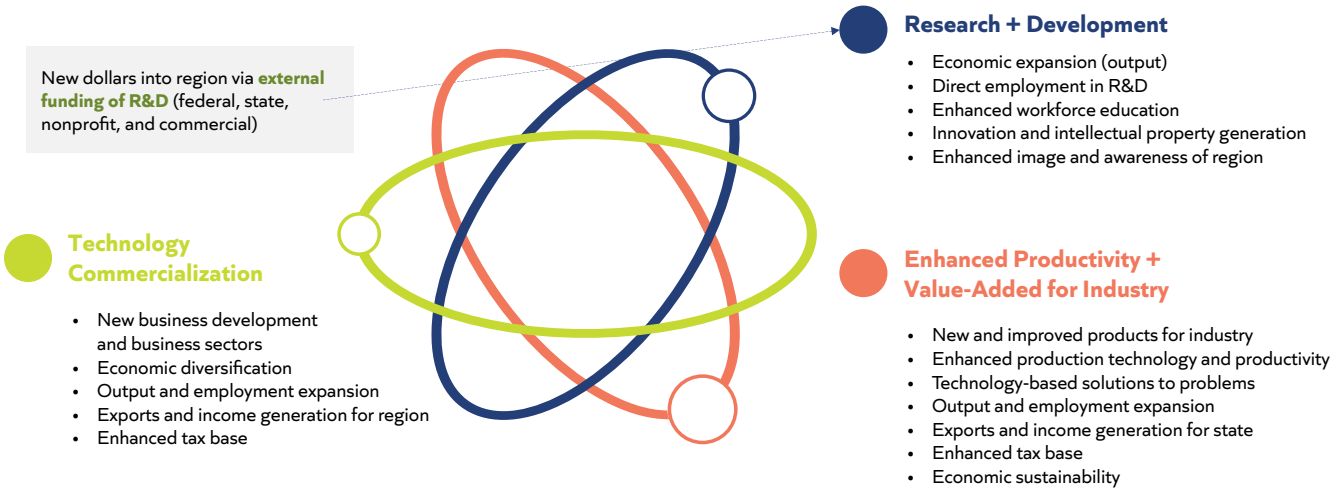
A key determinant of any region's long-term economic prosperity lies in its ability to innovate and enhance economic output based upon that innovation. Innovation serves as the basis for new businesses and can enhance the products and productivity of existing regional enterprises leading to business growth. Because of these benefits, generating an economic ecosystem conducive to innovation is increasingly important to the future resiliency of the Joplin region's economy.

Joplin should leverage its distinctive higher education (especially KCU and MSSU), healthcare, and business assets to build a presence in selected R&D and business innovation opportunities. Emerging technologies in healthcare present multiple pathways for new business development and business expansion, especially in, but not limited to, the rapidly developing digital health space. As expertise in research spaces builds, this may also become an attractor for existing businesses to consider a Joplin region location.

Potential Impacts:

Economic development approaches that emphasize innovation-based economic development can result in a variety of positive impacts for regions such as Joplin (Figure 15). Notable areas of impact include benefits tied to research and development expenditures, the commercialization of research into new technologies, products, and services, and the benefits to industry. Within each of these categories of activity, there is a wide array of positive impacts.

Figure 15: Innovation-Led Development is a Key Driver of Economic Growth



Source: TEConomy Partners, LLC.

Strategic Actions:

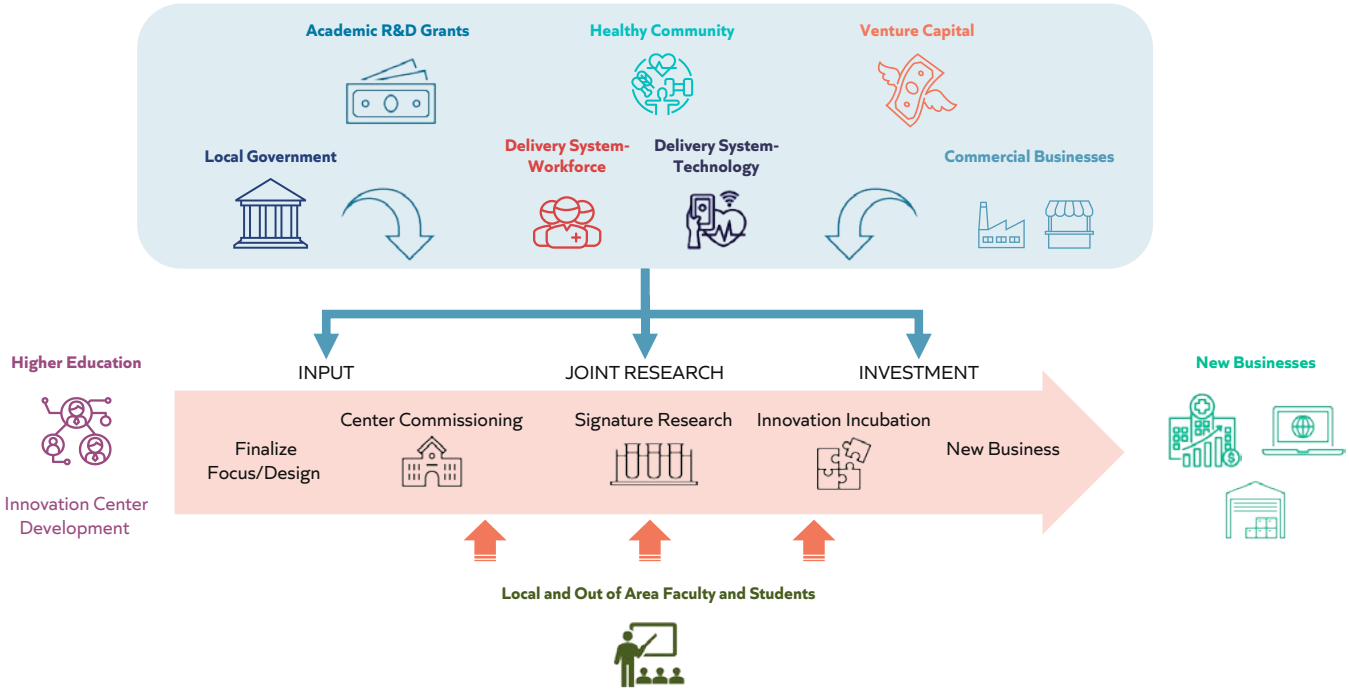
- **Action 2.1**—Build a presence in 3-4 selected areas of research:
  - Digital Health Solutions
  - Population and Community Health
  - Health EdTech
  - Medical Devices
- **Action 2.2**—Seek to establish a signature longitudinal health study connected to regional health improvement and digital health. Establish as a multistate regional study to engage with NW Arkansas interests in healthy community innovations.
- **Action 2.3**—Establish a small support stipend program for innovative postdocs to advance promising technologies. Innovative ideas can be imported by offering supported positions (perhaps joint between hospitals and universities) for those with interesting, vetted concepts in signature research areas.
- **Action 2.4**—Establish a pre-seed fund to help advance intellectual property (IP) commercialization and maximize connection building to Missouri funders and existing support programs. Seek to establish a moderate $1-2 million pre-seed fund able to provide up to $50,000 seed investments in promising concepts.
- **Action 2.5**—Assure availability of incubator space and accelerator/mentor services. Assure budding entrepreneurs have access to space and support to advance early-stage commercial concepts.

Action 2.1—Build a presence in 3-4 selected areas of research:

As an emerging industry sector for the Joplin region, it should not be expected that Joplin can compete with established industry biosciences hubs that have robust industry and academic assets capable of sophisticated drug discovery and development. Instead, it is recommended that the region build a research presence in three or four selected areas of research where there is an overlap with the current strengths and ambitions of the region.

On their own, none of the hospitals, colleges, or universities in the Joplin region may be defined as research-intensive. However, there is a shared desire to build a capacity for greater research activity and for the innovation and business development opportunities that can result from healthcare and health sciences research. To build this capacity, it is recommended that the Joplin Region develop a Research and Innovation Collaborative. This recommended activity would revolve around building "innovation centers" around identified research thrusts. These centers would help drive signature research and incubate new innovations and, eventually, businesses and entrepreneurs. It is envisioned that the collaborative effort would include both the public and private sectors, as well as a range of educational institutions in the region and healthcare providers.

Figure 16: Visualization of the Research and Innovation Collaborative



Source: TEConomy Partners, LLC.

As part of its assessment of the Joplin Region, TEConomy assessed technologies that have the potential to substantially change health care and health sciences over the coming decade (Appendix 2). Based on this assessment, in conjunction with the apparent strengths and assets that exist within the region, TEConomy considers the following four platforms as opportunities for a Research and Innovation Collaborative to focus on moving forward:

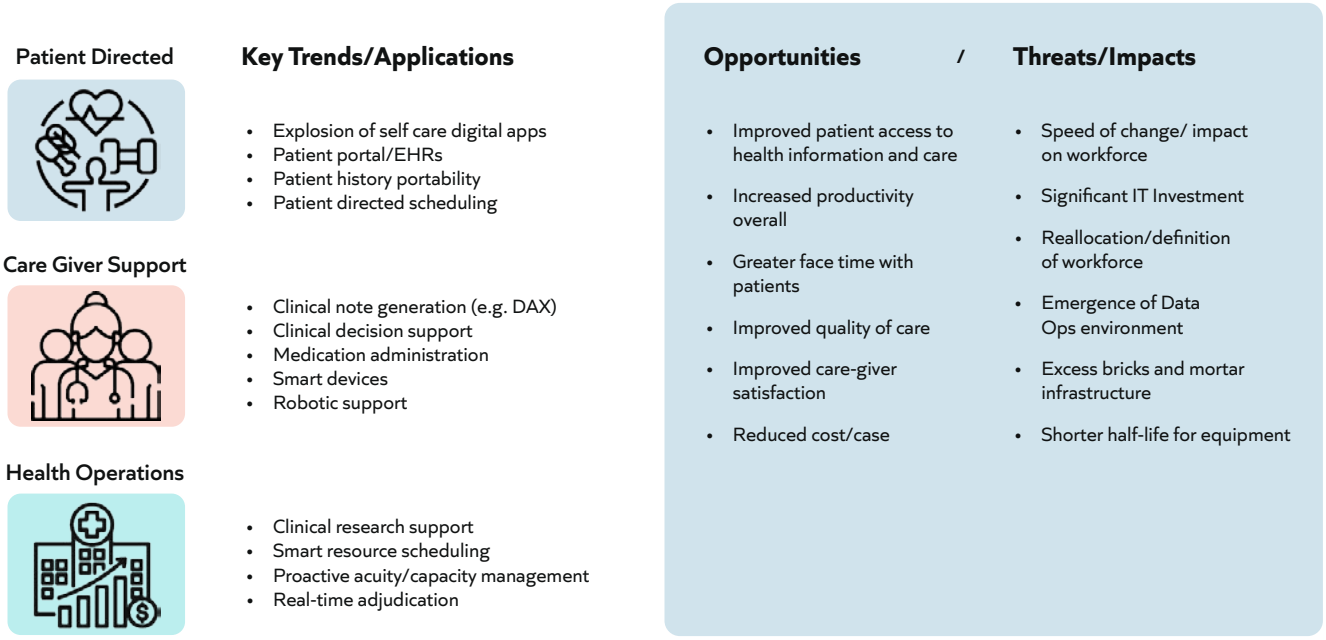
Platform 1: Digital Health Solutions:

Digital health refers to the deployment by healthcare organizations of new technologies to change how healthcare is delivered and the ways that healthcare is experienced. Examples of digital health technology solutions could include electronic health records (EHRs), cloud computing, telemedicine, cybersecurity, artificial intelligence (AI), and machine learning (ML). As explored further in Appendix 2, AI and ML are quickly changing the practice of healthcare delivery, and the further digitization of health processes will transform health delivery over the next 5-10 years. From a Health Delivery standpoint, these impacts can be discussed across three classifications:

- Patient-facing/directed—used by individuals to track and improve their health.
- Caregiver support—applications to support caregiver decision-making and work processes.
- Overall health operations—applications that support larger-scale operations.

Figure 17 summarizes these classifications and the trends, opportunities, and impacts associated with them.

Figure 17: Trends, Opportunities, and Impacts of Artificial Intelligence on Health Delivery



Source: TEConomy Partners Analysis

For the Joplin Region, the opportunity in Digital Health Solutions is embraced by both major health systems, as well as education providers such as KCU.



Platform 2: Population and Community Health

Although the U.S. spends a higher percentage of its GDP on healthcare than other nations, these high levels of expenditures are not producing the lengthened life expectancy and prevention of chronic diseases that might be expected. While focus on individual patients is highly important, a population health approach is required to overcome some of the shortcomings of the current system by:[21]

- Focusing on wellness instead of sick care.
- Using data more effectively to improve care.
- Engaging patients in their care.
- Coordinating care that was previously siloed and fragmented, something that is easier to do as accountable care organizations and patient-centered medical homes have evolved.

Population and community health also have an important technology and innovation component, such as using health informatics tools, health information technology programs, and medical devices within clinical care. Oftentimes, population and community health focuses on behaviors known to impact health and not the healthcare delivery mechanism directly. For example, technology investments in population and community health could include investments related to prenatal care, early childhood development, public school education, or local food systems.

21 https://www.ama-assn.org/delivering-care/population-care/what-meant-population-health-and-why-it-matters

Platform 3: Health EdTech

Health care is a content-rich environment requiring years of focused study to master and effectively apply the lessons learned to real patients with life-threatening illnesses. The average physician spends anywhere from 8 to 14 years in graduate and postgraduate training (medical school, residency, fellowship) to become a certified clinician in the United States. Nurses also have significant training requirements: 2 to 4 years as an undergraduate, and then 2 to 4 years advanced practice. Considering the fast-changing landscape of clinical practice and the critical situations clinicians often deal with, there is immense pressure to stay abreast of the latest developments and breakthroughs in the field.

Modern advances in Education Technology (EdTech) are transforming how education is conceived and delivered. In recent years, we have seen five significant technology trends influencing medical pedagogical approaches: micro-learning, virtual reality/augmented reality, online training, artificial intelligence, and personalized medicine. More information on each of these elements can be found in Appendix 2.

Figure 18: Elements of Health EdTech



For the Joplin Region, the Health EdTech opportunity is embraced by a range of educational institutions, including Missouri Southern State University, Crowder College, and Kansas City University's Medical and Dental Schools. Given the recent establishment of medical education facilities at these institutions, and the forthcoming Healthcare Sciences Innovation building at MSSU, there is a unique opportunity to explore the deployment of cutting-edge technology and advance research in these new facilities.

Platform 4: Medical Devices and Equipment

Medical devices, equipment, and technologies refer to the various devices, equipment, diagnostic tests, and health information systems that are transforming health care through earlier disease detection, less-invasive procedures, and more effective treatments.[22] As a hub for advanced manufacturing, Joplin has an opportunity to diversify this sector by expanding further into medical devices and equipment. This is not an easy task, but the region is already home to opportunities in areas adjacent to pre-existing strengths.

As noted previously, the MOKAN region's advanced manufacturing industry, which includes sectors such as plastics, batteries, electrical instruments, and food and beverage processing, has applications in and relevant to the healthcare sector. Examples of advanced manufacturing companies with a presence in the region developing new products for healthcare markets include Pitt Plastics (gloves, isolation liners, and water-soluble bags), Eagle Picher (batteries for wheelchairs, scooters, pumps, ventilators, beds and x-ray applications), Detecto (medical scales and weighing products), and Leggett and Platt (medical chairs, foam production for medical uses).

At these companies and others, there may be opportunities to encourage the development of nascent medical devices and equipment businesses in the Joplin Region. It is recommended that the MOKAN Partnership and the Joplin Area Chamber of Commerce lead the effort to expand the region's advanced manufacturing sector and begin to place a growing emphasis on health-related opportunities.

Existing Stakeholders and Relevant Programs:	• Freeman Health System • Mercy Joplin • Missouri Southern State University • Crowder College • Kansas City University—Joplin • Joplin Area Chamber of Commerce
Lead Implementing Organizations:	Research and Innovation Collaborative, comprised of above entities, would provide leadership across the platforms
Prioritization:	High
Timing:	Short-Term

22 https://www.advamed.org/medical-device-industry-facts/



Potential Action Components:

- Establish health research capabilities that will incentivize innovation and commercialization in select fields.
- Consider establishing expertise and shared infrastructure in Biostatistics and Population Research.
- Work with Delivery Systems to aggregate and analyze population data.
- Consider research alliances with relevant organizations/regions, e.g., Northwest Arkansas or Tulsa.
- Seek out research grants and funding sources to support ongoing innovation.
- Establish innovation centers on the sites of MSSU and KCU in signature areas that benefit the local community.
- Innovation centers will survey, research, and apply disruptive technologies (e.g., AI, IOT, Robotics, Advanced Networks, Quantum) to specific areas of the health economy.
- Support key development stages and coordinate design input, research, and financial support with key community stakeholders.
- Use innovation centers to attract innovative and research-oriented faculty and expand program development.
- Coordinate with local business, philanthropic and venture capital to promote innovation and commercialize new local businesses.

Action 2.2—Seek to establish a signature longitudinal health study connected to regional health improvement and digital health. Establish a multistate regional study to engage with NW Arkansas interests in healthy community innovations.

The development of the Alice B. Walton School of Medicine and the Whole Health Institute presents an opportunity for the Joplin Region to broaden its goals around healthy community innovation. Set to open next year at the Crystal Bridges Campus in Bentonville, the Whole Health Institute and the Alice L. Walton School of Medicine are separate entities founded by Alice Walton with the goal of transforming health care by taking a "whole health" approach. This includes a focus on physical, emotional, and mental health, as well as emphasizing preventative care and healthy lifestyles. As noted by Axios, the institute will include four divisions: care delivery, research and technology, community engagement, and behavioral health.[23] Whole Health intends to be a community resource to help the public live healthier, so they ultimately spend less on health care. The organization is planning to research outcomes in patients with chronic diseases like diabetes alongside existing local clinics like Community Clinic.

While the initial inclination for many in the Joplin region was to view the Whole Health Institute as a competitor, TEConomy recommends that the Joplin Region instead view the Northwest Arkansas Region as a collaborator. A central element of this collaboration would be a partnership around health delivery, including a multistate longitudinal health study that is connected to regional health improvement and digital health.

Existing Stakeholders and Relevant Programs:	• Kansas City University has professed interested in rural population health. • Freeman and Mercy Health Systems offer access to patient populations. • Access Health, Community Clinic, and other organizations necessary for targeting populations most at risk.
Lead Implementing Organizations:	• Joplin Research and Innovation Collaborative
Prioritization:	High
Timing:	Mid-Term

Potential Action Components:

- Develop relationships within the Northwest Arkansas Region.
- Identify potential research thrusts for longitudinal study and seek grant funding to implement.
- Work to implement study with participation of the regional health systems, KCU and MSSU.
- Work to identify and recruit participants across the region.
- Work with ongoing engagement.

23 https://www.axios.com/local/nw-arkansas/2023/09/05/bentonville-medical-school-health-nonprofit-alice-walton

Example: Geisinger's Program in Medical Genomics

Geisinger is an integrated healthcare system headquartered in Pennsylvania integrating "primary care and specialists, hospitals and trauma centers, insurance, medical education and research." Geisinger has been at the forefront in terms of recognizing the clinical insights and utility that genomic data and health record data that are mined together provide. Begun in 2007, Geisinger's MyCode Community Health Initiative has seen over 250,000 patients consent to participate in a research program that has been performed in collaboration with Regeneron's genetics research center. More than 100,000 whole exomes had been sequenced (as of reporting in April 2019). Motivated by the MyCode experience, Geisinger launched a "clinical whole-exome population screening program in mid-2018 as part of routine clinical care in a variety of Geisinger clinics, developing an end-to-end implementation platform—from patient engagement and consenting, to whole exome sequencing in a certified clinical laboratory, to physician education, to genetic counseling at scale, and to integration of clinical results into the electronic health record."[24] The main focus of MyCode is finding and confirming new disease-causing variants (changes) in patient genes, with research programs directed at:

- Searching for changes in genes that protect against disease.
- Targeting new drug development.
- Researching and learning what are the best ways to share medically actionable genetic results with patient-participants and then how to facilitate the sharing of that information with other potentially affected family members.
- Translating the results into clinical care.

The CEO of Geisinger, Jaewon Ryu, notes that:

> *About 90 percent of the patients we ask let us look at their entire genomes. That's huge trust; a typical rate is 15 percent. Our patients come from an unusually stable population—giving us volumes of data from more than 15 years of electronic health records. MyCode therefore provides unprecedented opportunity for early diagnosis and developing new and tailored treatments, or precision medicine. MyCode is already letting us help participants and their families prevent or mitigate the impacts of some identified genetic risk factors, including cancer and heart disease.*[25]

Some of the results emanating from MyCode in terms of advancements in breast cancer genetics have been called out as among the most significant applications of medical genetics in the "Genomic Medicine Year in Review." BRCA1 and BRCA2 are genes associated with hereditary breast/ovarian cancer syndrome. They have a high degree of sequence variation, but the population prevalence of "pathogenic" and "more likely pathogenic" variance (P/LP) has not been known. The research team used 50,000+ whole exome sequences from MyCode to examine the frequency of P/LP variants, finding a frequency significantly higher than other estimates. Importantly, it was found that "almost half of all variant carriers did not meet current criteria for clinical testing, and of those meeting testing criteria, nearly half had not undergone clinical testing. Thus, 3/4 of at-risk women were not identified as such and are not benefiting from evidence-based interventions; this is a significant care gap with implications for population health."[26] This represents a prime example of how the assembly and analysis of big data enables robust functional impacts to be generated in clinical care.

24 Huntington Willard in "Luminaries Share Their Thoughts on Advances in 'Omics Over the Past Five Years." *Clinical Omics Magazine.* Vol. 6, Issue 2. March-April 2019.
25 https://www.geisinger.org/about-geisinger
26 Teri A. Manolio et al. 2019. "Genomic Medicine Year in Review: 2019."—"What We're Missing: Most BRCA1 and BRCA2 Variant Carriers are Undetected." The American Journal of Human Genetics 105. December 5, 2019. Reporting on original research by Manickam, K. et al. (2018) JAMA Netw Open. 1, e182140.

Action 2.3—Establish a small support stipend program for innovative postdocs to advance promising technologies. Innovative ideas can be imported by offering supported positions (perhaps joint between hospitals and universities) for those with interesting, vetted concepts in signature research areas.

Although the Joplin region currently lacks the deep bench of faculty scientists found in other regions with research-oriented universities and hospitals, the area is still a suitable location to advance new technologies. In addition to homegrown ideas, one possible approach to identifying promising talent and businesses is to target post-doctoral students and other recent PhD-level graduates with technology or business ideas. This model would be based on the Cyclotron Road program at Lawrence Berkeley National Lab, though obviously tailored to the Joplin region. As another example, the Sync Space Rural Health Accelerator provides an approach that targets health tech companies on the coast with a rural emphasis (see box).

Recent research from the National Bureau of Economic Research developed a cost index based on wages for scientists, engineers, support personnel, and land for development.[27] Their analysis found that the Joplin Region is the area where the production of R&D is the least expensive of all metropolitan areas studied. With a cost index of 87, Joplin is considerably more affordable for R&D than the national average, especially when compared to places like San Jose (127 cost index), Boston (116), or San Diego (115). It is possible that this cost advantage could make the region a viable home for attracting innovative startups concerned with the costs of doing business in expensive coastal locations.

Based on the identified areas of research presented in Action 2.1, it is envisioned that this program would be the region's primary attractor for innovative postdocs and other skilled scientists seeking to advance their potential commercial concepts.

Existing Stakeholders and Relevant Programs:	Currently, limited research activity and infrastructure are necessary to attract postdoctoral students without a stipend and associated projects. Missouri Southern State, Kansas City University, Freeman Health System and Mercy Joplin all make sense as logical partners for such a project moving forward, with financial support from the philanthropic and economic development sectors.
Lead Implementing Organizations:	Joplin Research and Innovation Collaborative
Prioritization:	High
Timing:	Long-Term

27 https://www.nber.org/system/files/working_papers/w30416/w30416.pdf



Potential Action Components:

- Deploy a competitive application process, with applications reviewed by an advisory board from the participating organizations.
- Assemble seed funding for the program to provide applicants with access to a moderate salary and benefits for two years.
- Provide space within the region's designated innovation centers or at other spaces across the Joplin region.
- Offer business development counseling and opportunities for introductions to capital providers able to support the ongoing development of promising start-up ventures.

Example: Sync Space Rural Health Incubator

The Sync Space Rural Health Incubator manages a direct "pipeline of resources" for regional entrepreneurs to develop and establish businesses in East Tennessee. The organization provides multiple services to young business owners and start-ups, including:

- 1-on-1 business management mentoring
- Investor pitching coaching and event hosting
- Innovation conference sponsoring
- Government partnership and research development
- Nationwide workforce and business networking

Sync Space has supported more than 200 startups in 2022 alone, ranging from regions like San Fransisco to New York City. They have successfully established investor pitching boot camps, funded multiple investor centers, and engaged companies in more than 7 national programs. Through more than a dozen corporate partnerships, Sync Space has additionally been able to relocate multiple businesses to the East Tennessee area.

Example: Cyclotron Road program at Lawrence Berkeley National Laboratory

Cyclotron Road is a not-for-profit venture accelerator captive to DOE Lawrence Berkeley Laboratory (LBL) at the University of California (UC) Berkeley. Through a competitive program, Cyclotron Road seeks entrepreneurs—typically recent PhDs and postdocs worldwide—with ideas for energy-related business dependent on the physical sciences. The accelerator program is aimed at bridging gaps between idea and commercialization and is aimed especially at high-potential businesses that do not start out as obvious candidates for venture capital funding because of outsized technical and/or market risks.

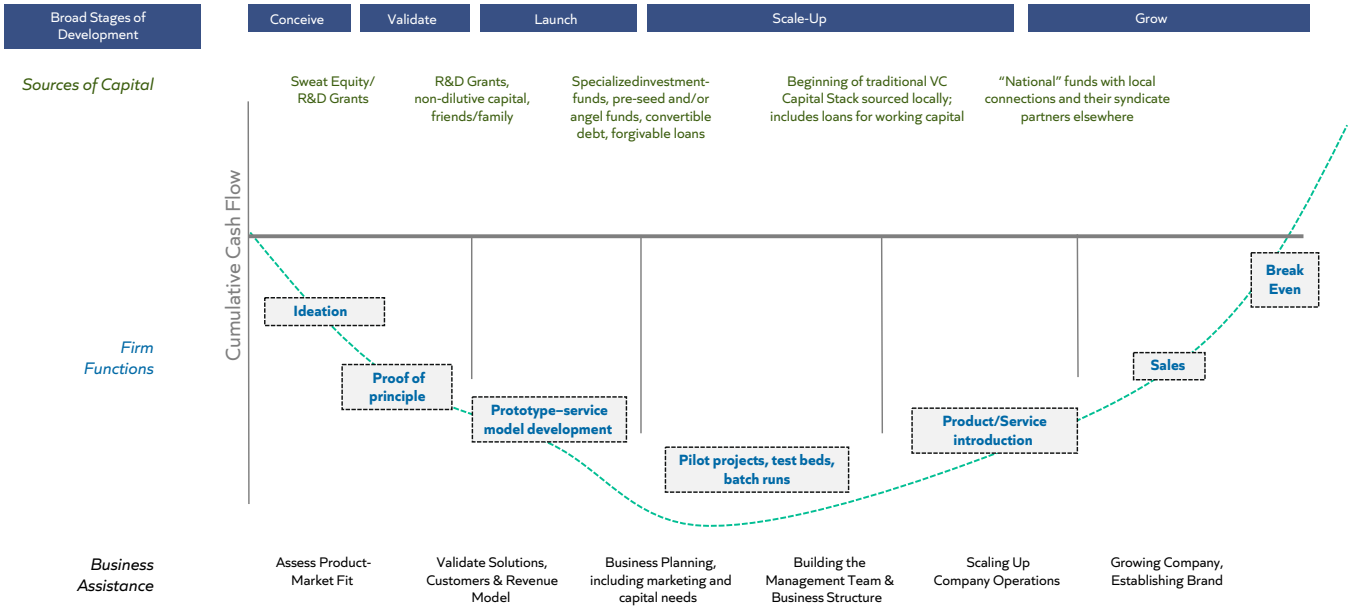
The accelerator provides a modest living stipend and health insurance to the selected entrepreneurs and complete access to the Lab, shop, user facilities, and (to an unspecified but clearly limited extent) the research services of LBL scientists so that entrepreneurs with energy-related ideas dependent on the physical sciences and engineering technology can prototype and "de-risk" venture ideas before entering into customer relationships and/or negotiation with private market investors. It also provides mentoring and connectivity of a kind completely conventional for private venture accelerators. Indeed, it is organized on a similar cohort basis, although cohorts are much longer (2 years) than the 12 weeks conventional in software/Internet sectors, and concludes with a typical "demo day" introducing graduates to private investors.

There were no capital costs involved in starting up Cyclotron Road because it is purely a virtual program. The Cyclotron Road program's success has led to it being recognized as a model for technology commercialization and innovation support within the national laboratory system. The program has been successful in fostering entrepreneurship and technology commercialization, leading to the spin-off of multiple companies based on the innovations developed by its fellows.

Action 2.4—Establish a pre-seed fund to help advance intellectual property (IP) commercialization and maximize connection building to Missouri funders and existing support programs. Seek to establish a moderate $1-2 million pre-seed fund to provide up to $50,000 seed investments in promising concepts.

Financial backing and support are key elements for successfully transitioning innovative ideas into new, marketable businesses. As shown in Figure 19, a range of capital sources may be required to meet a company's needs, depending on their stage of technology and business development. In a company's earliest stages, "sweat equity," R&D grants, nondilutive capital, and support from friends or family drive initial investment. Financial capital is especially important for helping entrepreneurs and startups overcome the "valley of death." At this stage, companies may face a critical gap in funding where they have likely exhausted the previous stages of capital and are not yet mature enough to begin accessing formalized venture capital or traditional debt markets. Specialized investment funds, convertible debt or forgivable loans, pre-seed funds, or angel investments are critical forms of risk capital to help companies succeed.

Figure 19: Sources of Capital, Firm Functions, and Business Assistance by Stage of Development



Source: TEConomy Partners, LLC.

Since 2010, there has been limited venture capital activity in the immediate Joplin Region. TEConomy analysis of Pitchbook data shows 15 total deals accounting for $62.4 million over the 13 years assessed (an average of 1.1 deals and $4.8 million in capital raised annually). As noted in Table 5, most of this deal flow has been driven by ZAF Energy Systems. It is worth noting that none of the companies listed are actively working in spaces directly related to healthcare and health sciences.

Table 5: Joplin Region Companies Identified in Pitchbook Database

Companies	Description	Total Raised	Year Founded
ZAF Energy Systems	Operator of a battery technologies company intended to develop high-performance batteries that are safe, environmentally responsible, sustainable, and economical.	50.27	2011
Æsir Technologies	Developer of battery technology designed to provide a viable and safe alternative to lithium-ion and lead-acid counterparts.	8.94	2011
BBC Electrical Services	Provider of electrical construction services intended to provide a safe workplace.	2	2005
LocalRaces	Developer of cloud-based race registration and event management software designed to process race participants, sponsors, and club member registrations.	0.15	2014
Roam Telecoms	Developer of clean and green tech solution designed to zero out everyday use from basic tech.		2017
Vivify Beverages	Producer of alcohol beverage products intended to address unmet consumer needs in the alcohol beverage space.		2015

Source: TEConomy Partners analysis of Pitchbook Data (2010-2022)

To improve the availability of venture capital in the Joplin Region and take advantage of the new ideas emanating from its research foci (Action 2.1), it is recommended that the Joplin region partner with community capital sources, nearby entrepreneurial service providers, and the state's technology-based economic development agency, Missouri Technology Corporation, to raise a capital fund that helps encourage small business growth within the region. It is recommended that such a fund be moderate in size (between $1-2 million) and focus on pre-seed investments, providing up to $50,000 seed investments in promising concepts. Given the relatively limited number of companies seeking investment, it might be possible that funds from the seed fund could go to piloting new programs or initiatives throughout the Joplin region.

Existing Stakeholders and Relevant Programs:	• The Missouri Technology Corporation has historically been a funder of the Joseph Newman Innovation Center. The MTC also has programs that can be used to encourage the availability of venture capital and entrepreneurial support services. • Various local financial institutions are a current provider of access to capital, though the pool is somewhat limited and unorganized for venture activity
Lead Implementing Organizations:	• Joplin Research and Innovation Collaborative
Prioritization:	High
Timing:	Long-Term

Potential Action Components:

- Identify programs at the state or federal level to tap into as a way of providing venture capital and entrepreneurial support.
- Identify sources of local investment for venture capital funds.
- Develop parameters for investment.
- Develop due diligence protocols for investment.

Action 2.5—Assure availability of incubator space and accelerator/mentor services. Assure budding entrepreneurs have access to space and support to advance early-stage commercial concepts.

Incubators and accelerators play an important role in the development of early-stage, technology-based businesses. One important way incubators can advance their client companies and add value to startups is by providing mentoring and startup support.

Historically, the Joplin region has had some success with developing startups through the Joseph Newman Innovation Center. There are opportunities to support this center further through the addition of value-added entrepreneurial support services, access to capital (Action 2.4), and other resources to serve small businesses. The region's growing information technology sector, in conjunction with a growing focus on community health and wellness, may attract companies wishing to use Joplin's unique population for testing and for piloting digital health technologies—these companies will all have facility and space needs.

Although the Joseph Newman Innovation Center offers suitable space for many types of small businesses, for companies developing innovative products, especially in the healthcare space, there may be a need for additional physical space. Given the nature of these types of facilities, there may be opportunities to align this incubator space with new developments at KCU Joplin or the new Missouri Southern State University Health Innovation building.

Instead of delivering services on its own, it is recommended that the Joplin Region pursue partnership opportunities with established entrepreneurial service providers with a deeper and more established network of connections and mentors. One example of an ideal partnership may be eFactory, an entrepreneurial support organization based in Springfield (see Example textbox). The eFactory is considered a best practice in offering support services to advance entrepreneurship, and they also have the cultural context necessary for working with companies in Southwest Missouri and elsewhere in the MOKAN region. The eFactory has been successful at scaling its operations across Southern Missouri and could be a strong fit for the Joplin region.

Existing Stakeholders and Relevant Programs:	• Joplin Area Chamber of Commerce and the Joseph Newman Innovation Center • Missouri Technology Corporation: Offers state funding through MOBEC awards and Physical Infrastructure Grants.
Lead Implementing Organizations:	• Joplin Area Chamber of Commerce • Missouri Southern State University • KCU Joplin
Prioritization:	High
Timing:	Mid-Term

Potential Action Components:

- Following on from 2.3 and 2.4—as promising research comes online—provide a space and support structure to germinate new businesses.
- Provide mentoring and support to startup activities.
- Provide physical space for product/service development.
- Advise on access to startup capital (seed funding, venture capital).

Example: eFactory Program Delivery

Missouri State University is creating an "eFactory" where a variety of innovation-focused programs are being delivered to the surrounding regions, including:

- Business planning and creation
- Financial management
- Workforce training
- Investor pitching
- Government contracting

The program's goal is to encourage and incentivize new, small businesses to root and be created in the region surrounding Missouri State University and in Springfield, MO, by creating various amenities and reducing the burden of managing a new business. The university also partners with multiple innovating companies and governments, including healthcare insurance, various financial institutions, the Springfield government, development holding corporations, and enterprise development funders.

Since its creation in 2013, the eFactory delivery program has supported more than 3,000 companies in development, workforce management, or scaling, and successfully created more than 2,900 jobs through client companies in the Springfield region.

VI. Strategy 3:

Advanced Healthcare Delivery

Advancing healthcare delivery to meet the region's unique community health challenges and increase workforce availability and productivity.

Rationale:

The healthcare delivery system within the region may become a leader in the development of an advanced healthcare delivery model that integrates technology, innovation, and new workforce skills to build an expanding position in digital health (Healthcare 4.0).[28] This strategy leverages emerging technologies to significantly improve regional healthcare access and outcomes via the use of telemedicine, medical IoT, remote patient monitoring, emerging AI solutions, and other technologies and innovative approaches to care **suited to enhancing healthcare in rural and small community settings**. Through enhancements to the healthcare system, this strategy will have the additional benefit of increasing patient access to care and overall community health, thereby promoting the economic development benefit of increased workforce participation and enhanced productivity levels across the economy (thereby boosting GDP).

The health and wellness of people living in Joplin and MOKAN Region is a key concern among primary and community care providers and is relevant to this strategic plan. Improving innovation and expansion in primary and community care can help improve access, the overall health of the Joplin Region, and the economy of the region.

Potential Impacts:

- Improve healthcare operational cost efficiency.
- Improve the health of the community.
- Improve workforce productivity.
- Increase workforce participation.
- Expand health market through telehealth/digital health platforms.
- Increase research and associated commercialization opportunities.

28 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8423174/#:~:text=2020).,Figure%206

Strategic Actions:

- **Action 3.1**—Primary and community care delivery network expansion and coordination. Increase primary and family care networks in the community including addressing physician gaps, patient navigation, and financial assistance.
- **Action 3.2**—Become an early adopter of telehealth and digital health solutions. Expand the use of telehealth, remote patient monitoring, and similar patient-facing technologies to significantly improve health service access. Enhance broadband and transportation access to serve the needs of remote and disadvantaged populations.
- **Action 3.3**—Develop shared data architectures and resources to capture and analyze clinical and population health data. Leverage and integrate telehealth, patient-facing digital health and EMR data to seed research and innovation. Consider the launch of patient gene sequencing to build a shared resource for research and clinical care advancement.
- **Action 3.4**—Implement caregiver support technologies and workforce management systems. Adopt technologies to improve workforce efficiency, clinical decision making, workforce skills development, and labor productivity.
- **Action 3.5**—Care Model Innovation. Joint initiative to design, pilot, and implement changes to health roles and delivery models (new roles, flexible scheduling, remote workforce, shared employees/pool/agency).
- **Action 3.6**—Healthy Community Coalition. Joint coalition (delivery system, business, government) promoting and funding healthy community initiatives in schools, businesses, and the broader community.

Action 3.1— Primary and community care delivery network expansion and coordination. Increase primary and family care networks in the community, including addressing physician gaps, patient navigation, and financial assistance.

Recent studies have clearly shown that the Joplin region has a scarcity of primary and family care practitioners. This lack of frontline community health contributes to negative health outcomes across the region and more broadly impacts the health delivery system's stability. Over the next 10 years, public and private health payers will increasingly shift from fee-for-service payment models to value-based models tied directly to total quality and cost of care.[29] This shift to population-based payments will negatively impact providers with poor population health outcomes. An unhealthy population also contributes to lower economic productivity overall.

As an immediate first step, this action seeks to fill the provider gap through targeted recruitment, deployment, and additional training of primary care workers in the community. Its aspirational goal should be to boost primary care coverage to a level meeting the U.S. average (currently 1 practitioner per 1,310 of the population) and to support those practitioners with appropriate clinical and information technology so that they can work as efficiently and effectively as possible.

Aligned with Action 1.1, the strategy should also seek long-term approaches to encouraging local medical students to pursue a career in rural primary care through scholarships, special studies, immersion programs, residencies, etc.

The region should also employ non-physician resources (nurse practitioners, community health professionals, patient navigators) and use mobile health clinics to further address community access gaps.

29 https://innovation.cms.gov/strategic-direction#

This action will enhance regional economic development through expanding patient volumes, adding primary care jobs, and increasing downstream patient revenue in the broader health system.

By providing sufficient frontline staff, community members will be able to access primary health services and better manage chronic disease, improving population health outcomes over time.

Existing Stakeholders and Relevant Programs:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry • MSSU • Philanthropic Organizations
Lead Implementing Organizations:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry
Prioritization:	High
Timing:	Immediate

Potential Action Components:

- Establishment of a Primary/Family Care action team comprised of key delivery system, higher education, and community stakeholders to own the strategy and implementation.
- Agreement on a regional based "goal state" for primary care, considering physician, nursing, allied health, and community health worker requirements. This goal should aspire to provide coverage equivalent to the U.S. average.
- Establish a shared action plan to recruit, train and deploy primary/family care practitioners through existing delivery organizations.
- Coordinate with local medical (KCU-Joplin) and nursing schools (MSSU, Crowder, et al.) to specifically bolster the regional primary care network through internships and residencies.
- Provide funding (private and philanthropic) to support recruitment incentives (bonuses, housing support, etc.)
- Train and deploy health navigators/community health workers for specific populations (geographic, disease specific) as needed.
- Explore/expand mobile specialty clinics for specific populations.
- Maximize coverage options for in-need populations (e.g.: Medicaid re-enrollment, pro-bono care).
- Advocate for appropriate coverage from key payer groups (public and private).
- Increase community knowledge of health services and options through targeted communication campaigns.

Examples:

Hawaii Island Family Medicine Residency, Hilo, HA[30]

(HIFMR) is a locally managed residency program that aims to train 4-6 family practice residents annually and encourage them to stay and practice in rural Hawaii after graduation. Residents work with other providers, such as Advanced Practice Registered Nurses (APRNs), behavioral psychologists, community health workers, and clinical pharmacists to care for their patients' needs. Of five graduating classes to date, over 85% have remained in the state to practice.

University of Missouri - Rural Scholars Program and Health Immersion Initiative[31]

The University of Missouri has established a Rural Scholars program to improve the supply and distribution of physicians in rural Missouri. The program is designed to offer students a variety of educational and hands-on experiences around rural healthcare. As part of the program, a Clinical Rural Immersion (CRI) initiative was set up to provide medical students with a 2-week immersive experience in rural health.

St Mary's Health Wagon of Central Appalachia - Mobile Outreach Services[32]

Like numerous examples across the country, the Health Wagon of Central Appalachia is a nonprofit organization providing healthcare services to residents in Southwest Virginia, including primary care, preventive care, chronic disease management, dental, vision care, and select specialty care. Care is delivered by mobile health clinics servicing 13 locations augmented by three stationary clinics. The St Mary's Health Wagon is funded by a variety of sources, including individual donations, grants, and government funding.

Missouri Health Professional Loan Repayment Program[33]

The Health Professional Loan and Loan Repayment programs administered by the Department of Health and Senior Services (DHSS) are designed to increase access to health care for Missourians in Health Professional Shortage Areas (HPSAs). In parts of Missouri, a shortage of primary health care providers makes it difficult for low-income, uninsured, and geographically isolated Missourians to receive health care. By working with health care providers and communities, access to care can be improved for the underserved.

30 https://www.hifmr.org/
31 https://medicine.missouri.edu/offices-programs/education/rural-scholars-program/
32 https://thehealthwagon.org/mobile-clinics/
33 https://health.mo.gov/living/families/primarycare/hpl-lr/

Action 3.2—Become an early adopter of telehealth and digital health solutions. Expand the use of telehealth, remote patient monitoring, and similar patient-facing technologies to significantly improve health service access. Enhance broadband and transportation access to serve the needs of remote and disadvantaged populations.

This action seeks to closely monitor advances in patient-facing and telehealth technologies and develop shared strategies for their promotion and usage across the region.

AI, mobile computing, remote monitoring, and telehealth technologies have the potential to transform health delivery in the JRAH region over the next 5-10 years. Greater digitalization and virtualization of care will help to overcome the physical access limitations of traditional, site-based clinic locations, yielding:

- Better informed patients
- Reduced wait times for care
- Improved data collection
- Enhanced caregiver productivity

These technologies are gaining ground rapidly, as evidenced by the recent uptake of telehealth during the COVID-19 pandemic. Increasingly, governments and other payers are encouraging their use as a way to deliver sustainable health outcomes at a lower cost. Telehealth will also be a critical tool for training and supporting care teams in rural locations through virtualized communications with specialist and tertiary centers.

Figure 20: Snapshot of Telehealth Usage

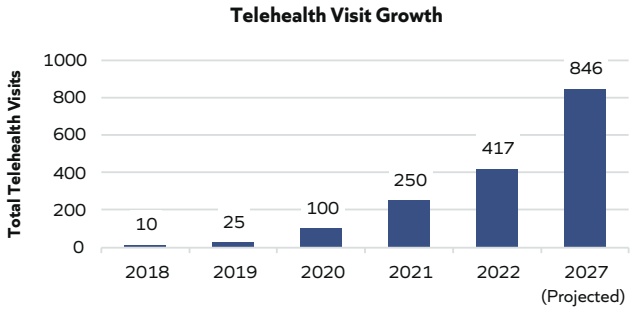
Key modalities:
- Synchronous –virtual visit
- Asynchronous –patient portal, questions/texting
- Remote patient monitoring
- Direct to patient or caregiver assist

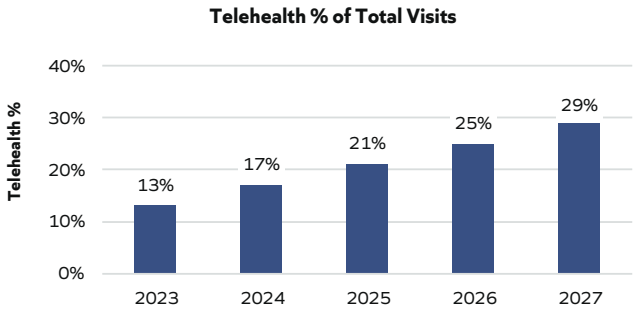
Leading specialties:
- Behavioral health
- Radiology
- Pediatrics and family care
- Cardiology

As much as 25% of total visits by 2027

Interview feedback: should be expanded for community outreach and improved access in rural communities

Missouri was 41st in adoption of Telehealth in 2022





From an economic development perspective, telehealth and patient-facing platforms should improve system efficiency by increasing patient throughput over time, reducing the friction patients experience when accessing care (wait times, travel times, navigation questions) and improving caregiver productivity. This system-level capability will also "seed" innovation and business opportunities through the capture of patient data, which can support clinical research and population health analytics (See Action 3.3). There will also be additional jobs generated through the establishment and maintenance of telehealth, digital health, data architectures, and their associated tools.

While caregivers across the region have in the past received moderate exposure to these technologies, there remain several barriers to regional expansion (technical, cultural, and financial) that could be better managed through joint commitment.

Existing Stakeholders and Relevant Programs:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry • MSSU • Philanthropic organizations
Lead Implementing Organizations:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System
Prioritization:	High
Timing:	Near Term

Potential Action Components:

- Identify, plan, and facilitate the rollout of transformational digital health technologies in the areas of healthy life-styles/wellness, health access in the community, and chronic disease management.
- Establish a shared initiative to expand Telehealth/Virtual health services across the community. Expand broadband coverage to remote locations. Provide funding support for infrastructure development, data plan costs, and training of caregivers and community members.
- Facilitate and accelerate direct patient scheduling/communication with caregiver network.
- Aligned with Action 3.3, explore and develop health data management requirements and opportunities from access to patient data.
- Aligned with Action 2.2, seek shared initiatives (Higher Ed and Delivery System) to drive research, rollout, and funding.
- Formulate and execute a sustainable patient transport strategy across the region.
- Actively seek grant funding to support expansion of the Telehealth platform (Health Resources and Services Administration, Federal Communications Commission, other regional philanthropies).
- Adopt new innovations to drive economic development.

Examples:

Rural Arizona Mobile Telehealth Initiative[34]

The Rural Arizona Mobile Telehealth initiative works to expand healthcare and telehealth, through the implementation of broadband infrastructure to rural communities. In northern rural Arizona, the project prioritized three aspects of telehealth:

- Real-time communication through two-way connection and consultation over phone and video.
- Store information in remote and cloud-based databases that remains forwardable to other rural healthcare providers.
- Remote patient monitoring availability for doctors across long distances allowing for vital-checking and data recording without requiring large amounts of travel.

Emergency vehicles, specifically ambulances, have been additionally commissioned and sponsored to implement telehealth measures to reduce inefficient travel and emergency visits. As a result, 12-lead EKG transmissions has more than doubled since 2018, leading to a greatly reduced mortality rate during transportation. Chronic disease education participation, because of the telehealth network expansion, increased from 2% in July 2017 to 26% in 2019.

Show-Me ECHO, University of Missouri[35]

Show-Me ECHO (Extension for Community Healthcare Outcomes) uses videoconferencing to connect interdisciplinary teams of experts with primary care clinicians and other professionals. They collaborate in interactive case-based learning to develop advanced skills and best practices, which improves patient care access, quality, and efficiency. It aims to build capacity among primary care providers in rural areas by connecting them with specialist teams through videoconferencing technology. Through regular virtual meetings called ECHO sessions, primary care providers present patient cases to specialist teams and receive guidance on diagnosis, treatment plans, and management strategies.

North Carolina Telehealth Network Association[36]

This is a nonprofit technology company that works to enable Telehealth across the state for public and nonprofit healthcare providers focusing on broadband connectivity and access to federally funded discounts for eligible providers. The NCTNA provides members access to a secure, state-wide fiber-optic network for telehealth processing.

Rural Health Information Hub (RHI Hub)[37]

Supported by the Health Resources and Services Administration (HRSA), the RHI Hub provides a range of design and implementation tools supporting telehealth platforms in rural areas including ongoing research, links to regional telehealth organizations, funding sources, and design and implementation tools.

34 https://www.ruralhealthinfo.org/rural-monitor/improving-rural-emergency-care
35 https://showmeecho.org/
36 https://nctna.org/
37 https://www.ruralhealthinfo.org/topics/telehealth

National Consortium of Telehealth Resource Centers (NCTRC)[38]

The NCTRC is a collaborative of 14 regional and two national Telehealth Resource Centers (TRCs), committed to implementing telehealth programs for rural and underserved communities. Funded by the U.S. Department of Health and Human Services and Health Resources and Services Administration (HRSA), the NCTRC provides timely and accurate information on telehealth across the nation.

New Growth Transit, West Central Missouri[39]

New Growth Transit, an affiliate of the West Central Missouri Community Action Agency, is a volunteer network that provides transportation to residents within the region. The volunteer drivers are reimbursed per mile via a stipend, and currently serve 12 counties in the West Central Region of Missouri. Ridesharing is personalized and scheduled on an individual basis, rather than following fixed routes and times. More than 106 transportation networks have been established, leading to successful development of more than 1,200 food distribution nodes and events. The program also directly led to residents attending more than 3,300 wellness events and classes that they would not have had access to otherwise. Expanding this program to Joplin could be a small but impactful step towards resolving transportation gaps.

38 https://telehealthresourcecenter.org/
39 https://newgrowthmo.org/rural-living/transportation/

Action 3.3—Develop shared data architectures and resources to capture and analyze clinical and population health data. Leverage and integrate telehealth, patient-facing digital health and EMR data to seed research and innovation. Consider the launch of patient gene sequencing to build a shared resource for research and clinical care advancement.

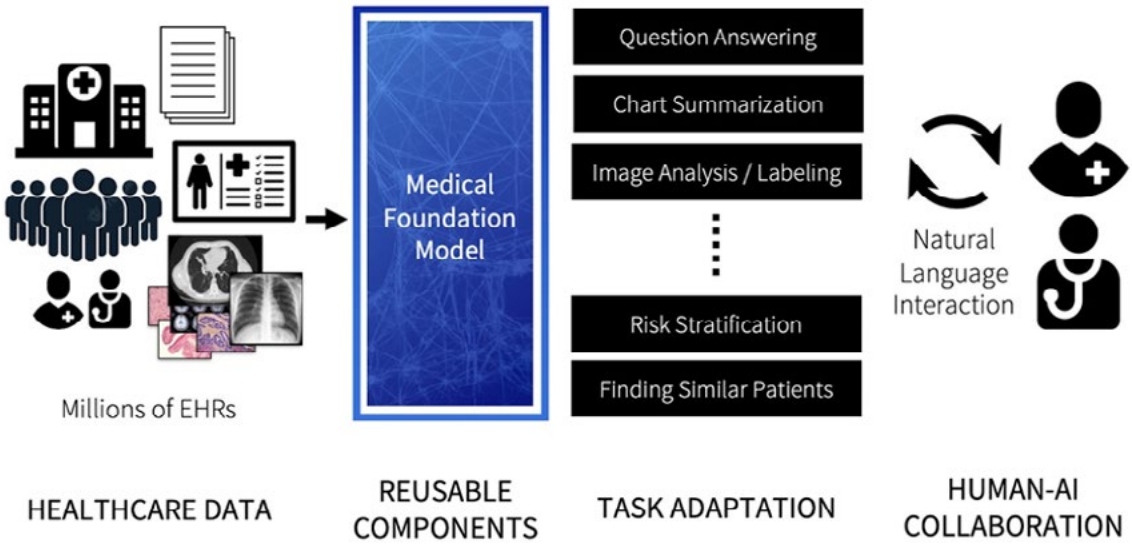
Actions 3.1 and 3.2 address the primary care workforce shortage while establishing the digital foundation for care delivery to the community. Action 3.3 seeks to capitalize this digitization through system-level approach to health data capture, analysis, and clinical innovation.

TEConomy recommends an active partnership be established to implement a shared health data infrastructure leveraging the priorities, skills, and technologies from both the higher education and health delivery sectors. This action would be closely aligned with Actions 1.3, 2.1, and 2.2.

Through this strategy, data captured from digital health, remote diagnostics and telehealth applications can be combined with existing EMR systems to support research and innovation in areas such as:

- **Population Health**—longitudinal health studies, geo-spatial analysis, population data analytics, social determinants of health studies, and public health surveillance.
- **Diagnostics and Treatment**—remote data monitoring, real world data capture, natural language processing, predictive analytics, and clinical decision support.
- **Health Operations Management**—patient flow analysis, workflow optimization, capacity management, supply chain management, and business intelligence.

Figure 21: Areas of Innovation Related to Healthcare Data Capture



Source: Jason Fries, Stanford University, Center for Artificial Intelligence in Medicine and Imaging.

Also, in line with trends in personalized medicine, the Joplin Region could consider the launch of patient **gene sequencing services** and associated opportunities for clinical research and medical advancement.

This will require a more sophisticated and holistic level of data architecture and management. This would be accomplished through a structured program of joint development, including required:

- **Infrastructure development** –data capture and integration, data storage, analytical tools
- **Data governance**—data standardization, stewardship, and security
- **Collaborative Research**—joint study design, data collection, analysis, and publication
- **Selected commercialization**—new tools, new insights, applied solutions.

Existing Stakeholders and Relevant Programs:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry • MSSU • County health departments • Philanthropic organizations
Lead Implementing Organizations:	TBD
Prioritization:	High
Timing:	Mid Term

Potential Action Components:

- Conduct a shared Needs Assessment across existing health data infrastructure and management services. Determine gaps in existing infrastructure and data sources. Identify shared data analysis opportunities and required investment in line with other regional health and education priorities.
- Establishing joint program for health data infrastructure development to include shared data structures (e.g.: data integration, data lakes, analytical tools), governance frameworks and maintenance responsibilities.
- Work through HIPAA and associated privacy and consent requirements.
- As infrastructure rolls out, conduct collaborative research in areas of population health, care delivery and operations management.
- Provide data and expertise to shared research. Leverage insights and innovations (new products/approaches) within the broader Delivery System.
- Establish associated health data science training programs for researchers, caregivers, and IT support personnel.
- Establish a gene sequencing and counseling service. Use data to seed additional clinical research.
- Actively seek grant funding to support expansion of data and analysis infrastructure (HRSA, Patient Centered Outcomes Research Institute (PCORI), Robert Wood Johnson Foundation, other regional philanthropies)
- Commercialize and apply research-driven insights and solutions as appropriate.

Examples:

Hampton Roads Biomedical Research Consortium

The Hampton Roads Biomedical Research Consortium (HRBRC) is a state-sponsored partnership between Old Dominion University, Eastern Virginia Medical School, Sentara Healthcare, and Norfolk State University. HRBRC's objective is to address health disparities, jumpstart scientific research, and advance bio-health development and innovation within the region. By partnering with community leaders, entrepreneurs, scientists, and professionals in government and industry, the Consortium has successfully established a robust innovation pipeline in Virginia. The Consortium is also now lab-capable, developing and creating a prototyping and integration center as well as 5G research locations. Multiple training, research, and biomedical centers have also been opened across the state.

University of California at San Francisco—Biostatistics and Population Health[40]

The UCSF Epidemiology and Biostatistics Program is a top-ranked program that offers PhD, MAS, and Certificate programs in epidemiology and biostatistics. Local hospitals are actively collaborating with UCSF to enhance the quality of care provided to patients through research collaboration, data analysis and interpretation, quality improvement initiatives and education and training. UCSF provides access to a variety of health datasets covering: Population Health, Medicare/Medicaid, Health Cost and Quality, Health Equity, Health Policy, Public Health, and Social Services.

40 https://epibiostat.ucsf.edu/, https://guides.ucsf.edu/pophealthdata/national

Action 3.4—Implement caregiver support technologies and workforce management systems. Adopt technologies to improve workforce efficiency, clinical decision making, workforce skills development, and labor productivity.

This action seeks to closely monitor advances in caregiver support technologies and develop shared strategies for their promotion and usage across the region. This should be an active partnership between higher education, health science research, and health delivery sectors.

This will include new technologies supporting:

- **Diagnostic and clinical decision support**—Automated guidelines adherence, image and pattern recognition, smart sensors, dosage calculation, predictive analytics.
- **Surgical/procedural support**—anatomical visualization, augmented reality, real time sensors, robotic surgical platforms.
- **Clinical documentation**—Voice-to-text transcription, point-of-care documentation, ambient clinical intelligence.
- **Cross team coordination**—EHR interoperability, care management platforms, unified communication platforms.
- **Patient/Family communication**—synchronous and asynchronous communication, medication reminders, and appointment scheduling.

Although management of these applications has traditionally been the responsibility of individual provider networks, Action 3.4 seeks to build on those foundations through shared research and development of new solutions in decision support, informatics, and administrative support.

This action would also monitor advances in EdTech (e.g., Micro Learning, AR/VR, Online/Remote Training, and AI) as well as advanced education management systems to develop shared strategies for their promotion, development, or deployment across the region.

Existing Stakeholders and Relevant Programs:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry • MSSU • Crowder College • Pittsburg State University
Lead Implementing Organizations:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System
Prioritization:	High
Timing:	Mid Term

Potential Action Components:

- Continue to evolve and improve Acute Delivery system clinical information infrastructure (as per organization IT strategies).
- Identify, plan, and facilitate the rollout of transformational care giver support technologies in both primary and acute care leveraging shared data and research infrastructure. Areas to include: clinical decision support, predictive and prescriptive analytics, smart sensor and robotics technologies, clinical documentation, caregiver communications, etc.
- Seek shared initiatives to drive research, rollout, and funding.
- Apply ongoing research to front-line care delivery from data obtained.
- Aligned with Action 2.1, work with Higher Ed to leverage disruptive technologies in EdTech (AR/VR, Online, Micro-learning, AI) that improves the skills of front-line clinicians.
- Actively work with Higher Ed to co-develop content for CPE tracks as well as new micro-credentialing programs.
- In conjunction with Action 3.2 configure both patient and caregiver scheduling systems to support Telehealth/ Virtual Care (synchronous, asynchronous, caregiver assist, remote patient monitoring).
- Support Delivery System HR Strategies to strengthen staff retention and career development

Examples:

Brigham and Women's Hospital, MA—AI-Supported Cancer Predictive Analytics[41]

A study from researchers from the Mahmood Lab at Brigham and Women's Hospital uses AI to combine multiple types of data from different sources to predict patient outcomes for 14 different types of cancer. The model interprets several sources of data, including genomic sequencing, pathology, and patient history, to diagnose and predict different types of cancer. Experts see the tool's ability to integrate and predict outcomes from multiple sources as a significant advance.

Vanderbilt University Medical Center (VUMC), TN—Using Large Language Models to Support Clinical Decision Support[42]

VUMC conducted research validating ChatGPT explanation of 65 patient clinical alerts compared to those elicited from clinical experts. The study found that ChatGPT was competitive with human expert input and could further provide valuable insights refining CDS tools, ultimately improving alert fatigue among clinicians. "AI-generated suggestions could be an important complementary part of optimizing CDS alerts, can identify potential improvements to alert logic and support their implementation, and may even be able to assist experts in formulating their own suggestions for CDS."

Northwell Health System, NY—AI-Supported Clinical Risk Assessment[43]

Northwell Health has made significant advances in applying AI to clinical risk assessment across a range of patient situations including identifying patient risk for respiratory failure, patient falls, medication errors, and readmission. Northwell uses machine learning to train patient risk models from their extensive EMR system and apply the learnings to hands-on patient care.

41 https://www.brighamandwomens.org/about-bwh/newsroom/research-briefs-detail?id=4227#
42 https://academic.oup.com/jamia/article/30/7/1237/7136722?
43 https://feinstein.northwell.edu/news/the-latest/machine-learning-tool-predicts-respiratory-failure-in-covid-19-patients

Action 3.5—Care Model Innovation. Joint initiative to design, pilot, and implement changes to health roles and delivery models (new roles, flexible scheduling, remote workforce, shared employees/pool/agency).

This action seeks a shared approach to workforce design based on the investments made and lessons learned from other strategic actions in higher education and advanced care delivery. Specifically, it will focus on innovations involving:

- **Job design**—for delivery system jobs including direct clinical, diagnostic, and clinical support, patient and information management, and support services.
- **Team design**—covering multidisciplinary team structure, team processes, and continuity of care between teams.
- **Resource management**—including staff sourcing/scheduling, site of care deployment and overall workforce management.

Workforce design will be greatly influenced by the disruptive technologies discussed in Appendix 2—Major Technology Trends Disrupting Education and Healthcare. Healthcare is likely to experience the formation of entirely new jobs/roles, greater job specialization of existing jobs, increased use of more sophisticated tools, and improved multidisciplinary coordination overall. With telehealth enabled consultations, health professionals will increasingly deliver care virtually. Interoperable EMR systems and communications platforms will enable decentralized coordination across care teams.

In time, with advances in precision medicine, care will become more personalized, and inpatient demand will shift to more ambulatory and home-based settings. A more comprehensive view of workforce requirements across the system will assist with overall staff scheduling and capacity management.

Action 3.5 will generate economic development mainly through increased labor productivity and cost efficiency of the broader health workforce. As with Action 3.4, there will also be greater EdTech opportunities through tertiary and ongoing professional development.

Given the regional management talent residing in both the Higher Education and Delivery sectors, multiple opportunities for shared innovation may be anticipated.

Existing Stakeholders and Relevant Programs:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry • MSSU • Crowder College • Pittsburg State University • County health departments • Philanthropic organizations
Lead Implementing Organizations:	• Primary care organizations (Access, other) • Freeman Health System • Mercy Health System • KCU Colleges of Medicine and Dentistry • MSSU
Prioritization:	Medium
Timing:	Mid-term

Potential Action Components:

- Participate in shared workforce needs assessment (Delivery and Higher Education) aligned with Actions 1.3 and 1.4. Identify anticipated clinical and technology driven changes to clinical job definitions and associated care models.
- Make changes to tertiary and CPE curricula to reflect ongoing workforce design changes.
- Proactively plan for specialization and "site of care" shifts (e.g.: ambulatory, virtual, home) that will impact skills, teaming, and resource deployment (See Action 3.2).
- Identify joint areas for research and development programs, specifically those focused on the impacts of disruptive technology (AI, IOT, Robotics, etc.) on workforce design.
- Address training of important non-clinical support staff (i.e.: telehealth, data analytics, etc.).
- Commercialize and apply insights from research as appropriate.

Examples:

University of Colorado Health[44] —use of AI to Improve Patient Flow

UC Health has implemented an AI-driven platform that analyzes data collected from their EMR and other systems to optimize patient flow and transport across internal departments (ED, Inpatient Units, Surgery, etc.) and downstream facilities (external discharge). The tool provides a system-wide dashboard, predicts bed demands, highlights potential bed deficits, and supports overall capacity planning and resource allocation across shifts. Outcomes include reductions in ED admit times, quicker ICU transfers, and reductions in lengths of stay.

National Health Service (NHS)[45]—Transformation Directorate, England

The NHS Transformation Directorate acts as an aggregator and coordinator of innovations in healthcare technologies across the public system. It develops and manages essential tools and approaches for digital transformation, including a data strategy, an applied AI Lab, an Information Governance portal, remote monitoring tools, and infrastructure to support collaboration in digital health across care teams.

Evolve Health Alliance

The Evolve Health Alliance is a collective effort and organization by health systems in Florida, North Carolina, Michigan, Utah, New York, and Ohio to address diversity, well-being, and retainment of regional workforces. The core tenets of this alliance include the following:

- Information sharing: The health systems involved in the alliance share data regarding best practices, workforce analytics, diversity program results, and reciprocal staffing and expertise-sharing agreements.
- Staff sharing: Beginning in the COVID-19 pandemic, health institutions share teams of upwards of 40 doctors, nurses, and auxiliary health staff to meet workforce gaps and seasonal shortages.
- Leadership development: The member organizations, from 2022 onward, host leadership development programs that allow members from each health system to participate in skills development in leadership, administration, and management. This program is additionally open to nonclinical staff, expanding the opportunities for the health system workforce to maintain an education and up-to-date administrative staff.

44 https://www.hcinnovationgroup.com/analytics-ai/predictive-analytics/article/21247463/at-uchealth-reengineering-bed-capacity-management-in-real-time
45 https://transform.england.nhs.uk/key-tools-and-info/

Action 3.6—Healthy Community Coalition. Joint coalition (delivery system, business, government) promoting and funding healthy community initiatives in schools, businesses, and the broader community.

Like many communities in the United States, the Joplin Region benefits from a having multiple organizations (government, delivery system, philanthropic) that seek to promote health and well-being for its citizens.[46] These groups have separate charters, staff, and budgets. When they do collaborate, they tend to operate in a loose collective with variable results. Stakeholder feedback during the analysis phase highlighted the need for stronger integration and coordination of these community groups.

Community Health Needs Assessments performed by various groups over the past 5 years are clear on current community health shortcomings; however, the implementation of programs to address these disparities is not well-funded and suffers from a lack of a unified approach. It could also benefit from greater participation from Higher Education stakeholders.

While Action 3.1 seeks to close the workforce gap specifically in primary care, Action 3.6 casts a wider scope, aiming to improve coordination and strengthen community and population health outcomes by mobilizing a broader group of stakeholders including delivery systems, government health departments, private community groups and more. It is recommended that the JRAH establish a "Healthy Community Coalition" to better engage existing stakeholders in a more expansive and unified approach.

Based on an initial scoping exercise, this could include stronger integration of existing community health programs and, in line with action 3.3, expand targeted research and development in areas such as population health management, health equity, and the social determinants of health.

Additional scope could include programs that promote community attractiveness including built infrastructure which support broader workforce recruitment strategies.

A more comprehensive approach to community and population health will also increase economic development through:

- A healthier workforce, with fewer productive days lost to disability and illness.
- More jobs supporting health delivery and education based in the community.
- Attracting health and nonhealth professionals to Joplin through built infrastructure initiatives.
- Attracting and retaining new businesses through a better understanding of the relative strengths and weaknesses of the population and rural economies more broadly.
- Targeted research and development opportunities (see Action 3.3) in rural health, biostatistics, health informatics, population health, and innovations that accrue from this work.

46 https://www.joplinmo.org/440/Community-Resource-Guide

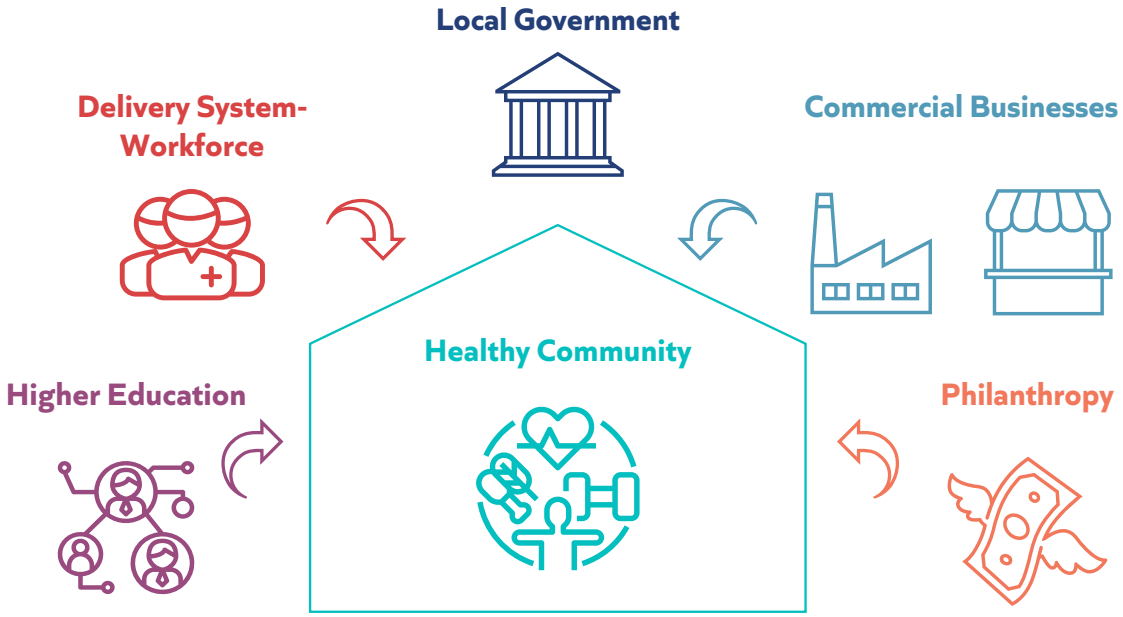
Existing Stakeholders and Relevant Programs:	• Health Departments (county and city based)
	• Primary care organizations (Access, other)
	• Freeman Health System
	• Mercy Health System
	• KCU Colleges of Medicine and Dentistry
	• MSSU
	• Crowder College
	• Pittsburg State University
	• Philanthropic organizations
	• City of Joplin
	• Joplin Chamber of Commerce
	• Other local/regional health related programs
	  • Healthy Joplin
	  • OneJoplin

Lead Implementing Organizations:	• Newly established Healthy Community Coalition
Prioritization:	High
Timing:	Short Term

Potential Action Components:

- Establish central coalition to network, coordinate and direct common community health programs with clear governance and secured funding.
- Define a shared charter and multiyear strategy across key community stakeholders (government, business, education, delivery, community members).
- Conduct an initial scoping exercise considering priorities from existing Community Health Needs Assessments. Prepare a shared action plan and budget.
- Participate, coordinate, and align existing population health initiatives deployed by delivery system partners.
- Guide community health education initiatives.
- Aligned with Action 3.2, encourage adoption of patient-facing digital health technologies.
- Manage data collection and reporting around critical community health outcomes/KPI's.
- Scope of management to include health equity issues and social determinants of health.
- Coalition scope to include community attractiveness projects and built infrastructure (e.g., shared spaces, bike and hiking trails, food options) related to healthy communities.

Figure 22: Visualization of the Joplin Healthy Community Coalition



- One organization, shared strategy, one management
- Appropriately resourced
- Shared community health initiatives
- Built infrastructure to improve attractiveness and healthy lifestyles
- Tax abatements/incentives

Source: TEConomy Partners, LLC .

Examples:

Health Care Collaborative of Rural Missouri (HCC)[47], Lafayette MO

Made up of over 40 organizations, the HCC provides a range of community health, advocacy, transport, and health education services to 5 counties in western Missouri. Community-based programs include case management, counseling and assessment, health education, transportation, translation services, rural health professional recruitment, ACA Marketplace enrollment, Medicaid and Medicare enrollment, and more. Collaborative membership is comprised of primary and community care providers, local hospitals, school districts, community NGOs, local churches and charities, local business leaders, and county health departments. It receives funding from federal and state grants, private donations, and membership dues.

Thrive Regional Partnership in the Chattanooga Area

The Thrive Regional Partnership is a coalition of 16 neighboring counties across state lines in Alabama, Georgia, and Tennessee. By convening stakeholders across a wider variety of demographics and constituents, the county governments were successful in petitioning the federal government for resources. They were additionally successful in organizing and distributing those resources across participant schools. Successes include the following:

- Secured federal transportation grant through inter-state freight partnerships (one of four regions in the country to do so successfully).
- Developed personalized resource utilization plans and provided digital management tools to 15 rural communities in the area to expand education efforts.
- Created an open-source Geo hub that allows the public and policymakers to access organized and up-to-date information about the region, the partnership, and participating education institutions.

Rural Wisconsin Health Cooperative

The Rural Wisconsin Health Cooperative is a coalition of 44 rural hospitals dedicated to sharing medical and surgical resources across historically underserved areas. The cooperative is owned equally by participating members and, since its inception in 1979, has accomplished significant gains in the following areas through its networking, resource sharing, and government petitioning:

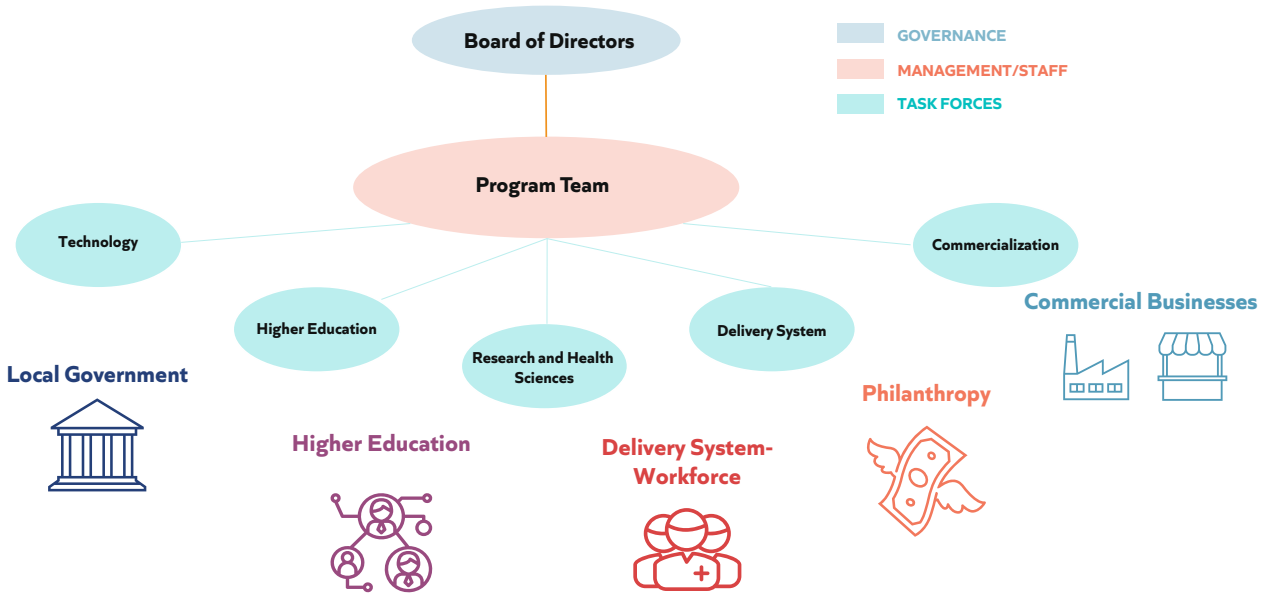
- Workforce retention, upskilling, and distribution
- Developing education efforts throughout rural communities
- Maintaining Medicare/Medicaid funding for less regulated areas
- Reimbursement for community-led health initiatives

47 https://hccnetwork.org/about/#

VII. Organizing for Success

Many of the strategies and actions highlighted above rely heavily on the Joplin Regional Alliance for Healthcare and Health Sciences (JRAH) to play either a leadership or complementary role. As a result, it is recommended that the JRAH act as an anchor and help enhance the region's ability to organize for success. This would entail a new charter based on the strategies and actions outlined above, sources of shared funding, a dedicated staff and leadership model, and the support of interdisciplinary task forces that help to enable the implementation of the plan. Figure 23 provides a visualization of this approach.

Figure 23: Organization Model for Joplin Regional Alliance for Healthcare and Health Sciences



Source: TEConomy Partners, LLC.

It is recommended that the board of directors be similar to the current JRAH composition and be comprised of business leaders across higher education, health delivery, local government, local business, and community representatives. Central to the success of this leadership model is the ability to tap into leadership at the highest levels of an organization and ensure that these roles are able to stay actively involved, even across transitions.

To help enact the actions outlined in this strategic document, it is also recommended that the JRAH develop a program management team. It is envisioned that this small team (2-3 FTE's initially) would manage the work effort, including mobilizing and managing resources, executing an agreed program of work, communicating program progress to the Board and other stakeholders, estimating and managing required financial and technical resources, and ensuring on-time, on-budget delivery. The program staff would also work closely with the various task forces outlined in Figure 23. It is envisioned that these task forces are comprised of part and full-time teams of subject matter experts, arranged by program/project area. The task forces would work to define outcomes, workplans and timeframes across their various topics.

Key factors behind the success of such a model are the effective inter-organizational collaboration among the various actors. It is intended that the JRAH be an alliance and not dominated by any single sector or institutions. The ability for organizations to agree on facts, priorities, and ideal end-states will also be critical, as communication and the levelling of expectations will be necessary both at the onset of the project, and throughout the various tranches. It is also important to note that adequate personnel and financial support will be necessary for these actions to see success.

Importantly, a key factor for the success of this project is the ability for tangible benefits to flow from both individuals and groups. The value of such an approach is that the various actors in the healthcare and health sciences ecosystem are able to benefit from the investments they make. As outlined in Figure 24, individual stakeholder investments and benefits can drive something greater for the broader community.

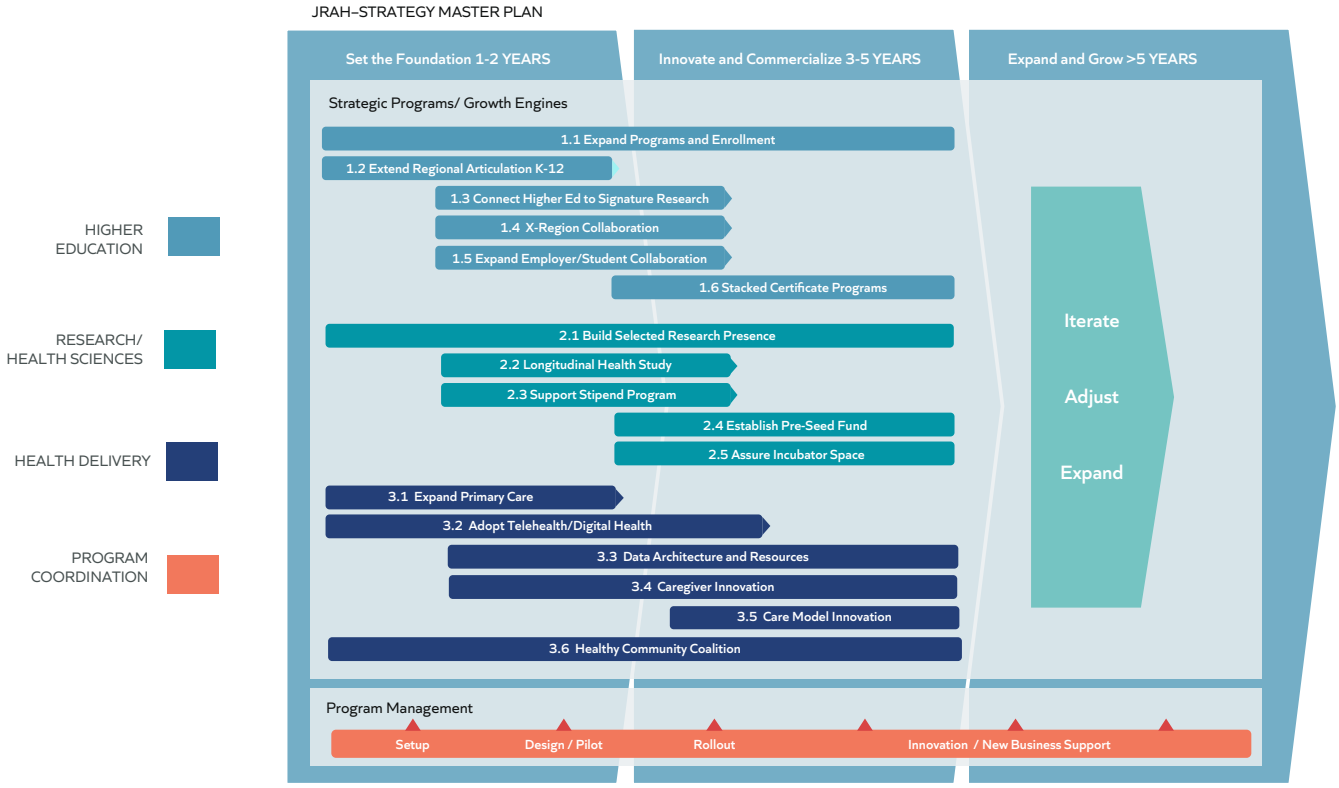
Figure 24: Shared Investments and Shared Benefits



Source: TEConomy Partners, LLC.

Moving forward, it will be important that the JRAH act with both intentionality and vigor to achieve its lofty ambitions and advance its healthcare and health sciences sector. In the earliest stages, there are several strategic programs and growth engines that can serve as anchors for the strategy; it is recommended that these actions be pursued immediately, or else within the first two years. Furthermore, it is important that the region continues to iterate, adjust, and expand their models to align with new trends and thinking. Figure 25 seeks to approximate the timing of the various actions and strategies outlined in this document.

Figure 25: Envisioned Timeline of Strategic Plan



Source: TEConomy Partners, LLC.

Ultimately, the success of this strategic plan will rest on the ability of the Joplin Region to implement it. It is believed that the JRAH can act as the strong backbone organization to support such ambition, but this initiative requires both investment and patience.

Conclusion

Joplin and the multicounty MOKAN region benefit from the presence of multiple signature assets in healthcare and higher education that present a robust platform for ongoing economic growth. Aligning healthcare workforce demands and regional higher education programming will provide a multifaceted series of benefits for the region—bringing students (and their dollars) into the community for education, increasing opportunities for students to gain stable employment in the region with good prospects for career advancement, and improving the quality of regional care while lowering costs. As the higher education and healthcare sectors advance collaborations, opportunities will also exist to build distinctive R&D programs designed to improve both systems and spark innovations that engender entrepreneurship and the growth of new and existing regional business enterprises. Because the availability of a skilled, high participation, and productive workforce underpins the ability of Joplin to continue to achieve economic growth, the strategy also advances a community-health-focused approach designed to significantly advance a healthier, more productive regional population while also engendering innovation.

Appendix 1:

List of Stakeholders and Interviews

Name	Position	Organization
Paula Baker	President and CEO	Freeman Health System
Jeremy Drinkwitz	President	Mercy Hospital Joplin
Stephanie Brady	Executive Director	Community Clinic of Southwest Missouri
Dean Van Galen	President	Missouri Southern State University
Travis Stephens	President and CEO	Joplin Chamber
Rudy Farber	Chairman	Community Bank and Trust
Bryan Vowels	CEO	Vowels Stovern Wealth
Ryan Stanley	Financial Advisor	Edwards Jones
Keenan Cortez	Mayor Pro Tem	Joplin
Rick Schooler	Vice President, Joplin Campus	Kansas City University
Haley Reardon	Community Relations	Kansas City University
Shelli Hewitt	Dean of Admissions	Missouri Southern State University
Bethany Kendrick	Communications	Missouri Southern State University
Lisa Toms	Provost/VP of Academic Affairs	Missouri Southern State University
Brad Hodson	Executive Vice President	Missouri Southern State University
Erin Tabor	Director, EMS	Missouri Southern State University
Jill Pyle	Director, Dental Hygiene	Missouri Southern State University
Melinda Brown	Director, Healthcare Admin.	Missouri Southern State University
Sherri Whiteman	Chair, Respiratory Care	Missouri Southern State University
Lisa Beals	Chair, Nursing	Missouri Southern State University
Kimberly Medicheck	Chair, RadTech	Missouri Southern State University
Mary Frerer	HR Director	Freeman Health System
Steve Graddy	Chief Financial Officer	Freeman Health System
Nick Edwards	City Manager	City of Joplin
Jake Heisten	Executive Director	MOKAN Partnership
Tony White-Robyn	Assistant City Manager	City of Joplin
Amy Kauffman	Workforce Development	Joplin Chamber
Phil Witt	Associate Vice President for CTE	Crowder College

Name	Position	Organization
Doug Hunt	Director of Entrepreneurship	Joplin Chamber
Michael Herr	VP Operations	Mercy Joplin
Mark McNeemer	Regional Physicians Executive	Mercy Joplin
Scott Watson	Director, Carthage	Mercy Joplin
Tyler Sturgeon	Finance	Mercy Joplin
Tracy Godfrey	Chief Medical Officer	Access Health
Kerry Sachetta	Superintendent	Joplin K-12 Schools
Skip Rollins	Chief Innovation Officer	Freeman Health System
Dr. David Baker	Chief Medical Officer	Freeman Health System
Dr. Katricia Pierson	President	Crowder College
Dr. Marc Hahn	President	Kansas City University
Jerrod Hogan	CEO	OWN, Inc.
Matthew Johnson	CEO/Founder	Midwest Interactive
Mitch Dolloff	CEO/President (Automotive Group)	Leggett and Platt
David Humphrey	President and CEO	TAMKO
Veronica Miller	Manager, Human Resources	MAPP Tech
Dr. Rob McNab	Owner	McNab Wellness
Christina Williams	City Council Member	City of Joplin
Stephanie Brady	Executive Director	Community Clinic

Appendix 2:

Major Technology Trends Disrupting Healthcare and Education

We live in exciting times, with advances in information, communication and clinical technologies promising to transform education and healthcare like no other period in human history. Indeed, the COVID pandemic provides recent proof of these technologies in action as genetically derived vaccines were delivered, at scale, within 12 months of the pandemic's outbreak.

Because Joplin is focused on developing a strategy and action plan with a 10+ year time horizon, there is a distinct need to inform strategy development with consideration of emerging trends, clinical frontiers, disruptive healthcare technologies, and market changes (including potential changes in the U.S. healthcare system) that may impact development trajectories.

For this analysis, TEConomy has identified four major technology trends that are now disrupting and transforming how education and healthcare will be delivered for generations to come. They represent both opportunities and threats to the current order redefining:

- the "what" of healthcare: the nature of disease, and our understanding of the underlying systems of disease onset and progression,
- the "how" of healthcare: the tools, modalities, and techniques used to diagnose and treat disease, and
- the "who" of healthcare: the skills and credentials required to manage these changes, including the redefinition of clinical jobs, the use of new tools and technologies, and the deployment of care teams, both physically and virtually.

Any effective strategy will seek to actively understand, contribute to, and exploit these new technologies.

Artificial Intelligence and Digital Health Solutions

Perhaps the most immediate of these trends is the advent of Artificial Intelligence (AI) and Machine Learning (ML) in the practice of healthcare delivery. Recent cross-industry analysis of AI impacts and opportunities often lists healthcare near the top. In a recent analysis of the top 100 AI investments in 2023, of the 34 industry-related investments, eight of them (24%) were healthcare investments.[48]

Artificial intelligence and the further digitization of health processes will transform health delivery over the next 5-10 years. From a health delivery standpoint, these impacts can be discussed across three groups:

- **Patient-facing/directed**—used by individuals to track and improve their health.
- **Caregiver support**—applications to support the caregiver decision-making and work processes.
- **Overall health operations**—applications that support larger scale operations.

Figure A1: Trends, Opportunities, and Impacts of Artificial Intelligence on Health Delivery

	Key Trends/Applications	Opportunities / Threats/Impacts	
Patient Directed 	• Explosion of self care digital apps • Patient portal/EHRs • Patient history portability • Patient directed scheduling	• Improved patient access to health information and care • Increased productivity overall • Greater face time with patients • Improved quality of care • Improved care-giver satisfaction • Reduced cost/case	• Speed of change/ impact on workforce • Significant IT Investment • Reallocation/definition of workforce • Emergence of Data Ops environment • Excess bricks and mortar infrastructure • Shorter half-life for equipment
Care Giver Support 	• Clinical note generation (e.g. DAX) • Clinical decision support • Medication administration • Smart devices • Robotic support		
Health Operations 	• Clinical research support • Smart resource scheduling • Proactive acuity/capacity management • Real-time adjudication		

Source: TEConomy Partners, LLC

48 https://www.cbinsights.com/research/artificial-intelligence-top-startups-2023/

Patient Facing/Directed AI

Patient-directed AI, often combined with other digital health applications, refers to those functions designed and developed to be used by patients or individuals to manage their health.

Investments in these platforms have boomed over the past 5 years, and while spending has recently leveled off, the use and integration of these applications continue to increase, especially with the advent of Large Language Models (LLM).[49] These tools tend to focus on three areas:

- Quantification and tracking of patient information
- Advice on healthy lifestyles and interventions
- Assistance with health system navigation.

Empowered by detailed patient data, these applications have the potential to identify disease trends early, guide patients toward more healthy lifestyles, and help schedule critical healthcare services.

Currently, as much as 42% of the U.S. population has used these tools.[50] As uptake increases, an added benefit will be the further digitization of patient health data (both structured and unstructured) that can be leveraged to drive health education and research. In recent years, prestigious research institutions have emerged, backed by significant investment, in the fields of biostatistics and population health (Johns Hopkins, Harvard, U Cal Berkeley, et al.). These institutions seek to innovate and commercialize solutions in the public health market, leveraging an immense proliferation of digitized patient data.[51]

A major challenge from a community health perspective is that the patient populations that would most benefit from these solutions are often slow to adopt. This is further complicated by a lack of technical infrastructure (e.g., broadband) in rural counties, which can be a barrier to effective uptake.

Given the current analysis from Joplin Regional Community Health Assessments, patient-directed digital applications combined with telehealth platforms have the potential not only to improve chronic disease management but also to seed significant health research opportunities at a population level. They should be encouraged through public information and programmatic support as a more holistic approach to community health and economic development.

49 https://www.forbes.com/sites/forbestechcouncil/2023/06/20/the-impact-of-large-languages-models-on-healthcare/?sh=abbc66d62924.
50 https://www2.deloitte.com/us/en/insights/industry/health-care/consumer-health-trends.html
51 https://www.usnews.com/best-graduate-schools/top-science-schools/biostatistics-rankings

Caregiver Support AI

From a caregiver perspective, new digital and AI-powered technologies will be some of the most exciting applications to emerge in the near term (1-5 years).

AI is currently used to diagnose digital images for cancer, develop treatment plans in primary care, assist complex surgeries, support patient monitoring in the ICU, predict acute onset of disease, streamline clinical note-taking, calculate complex drug dosages, and more. In 2023, AI tools trained on LLMs were able to pass the Medical License Exam (U.S.MLE) at 60% accuracy without prior reinforcement or training.[52]

As is often the case, these groundbreaking capabilities have been enabled by foundational infrastructure investments made over many years. In this case, investments in Electronic Medical Records (EMR) over the past 20 years, especially those funded and encouraged by the HITECH Act of 2009, have provided a foundation of data and functionality that, when leveraged using artificial intelligence, are yielding new insights for diagnosis and treatment.

AI tools will be able to evaluate individual patient data held in EMRs, comparing them to large datasets of similar patients to identify diseases and prescribe the most efficacious treatment. Coupled with new advances in medical science and personalized medicine (discussed later in this section), we are likely to witness entirely new definitions of disease and wellness.

Clearly, if only a modest percentage of these innovations become reality, there will be a transformational impact on clinical decision-making as:

- Diseases will be diagnosed earlier,
- Therapies will become more effective, and
- Adverse events and unwanted side effects will decrease.

An additional benefit will be the clinical time saved by these innovations. A recent innovation, Ambient Clinical Intelligence (ACI) systems, actively monitors caregiver-patient conversations and, using natural language processing, summarizes key aspects of those conversations and drafts clinical notes and orders. These systems, while in their early stages, have the potential to save time and reduce errors significantly. Caregivers should also be able to spend more time face-to-face with patients as these applications continue to "mop up" tedious administrative and data entry activities.

52 https://www.ama-assn.org/practice-management/digital/chatgpt-passed-U.S.mle-what-does-it-mean-med-ed#

Overall Health Operations AI

At a health delivery system level, these technologies will alter the way health resources are defined and deployed to meet a given level of demand. This will happen in a few distinct ways:

- **Clinical Research**—Large-scale data repositories, supported by advanced analytics and distributed clinical trials technology, will give rise to whole new areas of clinical research. For example, trends in decentralized clinical trials using mobile technologies have expanded the reach and conduct of drug and therapy trials, accelerating drug approval times and expanding commercialization opportunities.[53]
- **Site of Care**—Care consultation and treatment will increasingly shift to sites based in the community, either at home as enabled through Telehealth or to ambulatory clinics. By some estimates, brick-and-mortar requirements for hospital beds will reduce the need for hospital bed stock by as much as 30% over the next 10 years.[54]
- **Overall Patient Flow**— All of this, of course, will alter the overall flow of patients (community >emergency> acute> post-acute) through the system. These new applications will be able to predict seasonal flows (e.g., flu season) as well as scenario-play one-off shifts in demand (e.g., epidemics) to guide staff allocation and system flexing. Operational key performance indicators (KPIs) will evolve, and AI-enabled resource management will be used to manage labor, medicines, equipment, and facilities more efficiently.

This AI enabled health system will be built on significant investment in technical infrastructure (technical, communication, application, data). Some estimates are that Health IT spending will increase 16.5% annually through 2030.[55] As these large infrastructure platforms expand, increased investment in cyber security, risk management, and advanced analytics capabilities will also be required.

53 https://www.sciencedirect.com/science/article/abs/pii/S0025619622005602
54 https://www.oliverwyman.com/our-expertise/insights/2020/oct/health-innovation-journal/healthcare-supply-will-be-right-sized.html
55 https://www.grandviewresearch.com/industry-analysis/healthcare-it-market

Telehealth

According to the state of Missouri "Telehealth" or "Telemedicine" is defined as: "the delivery of health care services by means of information and communication technologies which facilitate the assessment, diagnosis, consultation, treatment, education, care management, and self-management of a patient's health care while such patient is at the originating site and the health care provider is at the distant site. Telehealth or telemedicine shall also include the use of asynchronous store-and-forward technology."[56]

While Telehealth has been in use in one form or another since the 1990s, uptake has been constrained by a variety of issues (lack of infrastructure, poor video conferencing applications, lack of support from key payers).

One bright spot of the recent COVID pandemic is that the use of Telehealth rose by up to 70% of ambulatory visits in the early stages of the pandemic. While overall usage has tapered off post-pandemic, according to the American Telemedicine Association, Telehealth has grown 20% per annum between 2017-2022, with similar growth expected over the next five years.[57] Some estimates have Telehealth handling up to 25% of all outpatient visits by 2027.

Telehealth is typically employed across the following modalities:

- **Synchronous visits**—real-time teleconferencing between patient and caregivers reduce or eliminate the need for patient travel and often reduce the overall wait times for care. Specialist outreach through remote caregiver-assisted consultations (e.g., critical care, radiology) extends the reach of specialist knowledge.
- **Asynchronous communications**—texting questions or requests through a patient portal enables near real-time communication and ongoing care management.
- **Remote patient monitoring** through devices such as wearables provides more realistic and extended tracking of patient vitals.

It's clear from recent trends that Telehealth is especially well suited for such specialties as primary care, pediatrics, behavioral/psychiatry, radiology, and cardiology. As such, it represents a significant solution pathway to address community outreach in these specialties for the Joplin Region.

Recent changes by large Payer Organizations have opened the door to increased investment and usage.[58] Both public and private payers have also loosened requirements for Telehealth services in terms of services covered and the locations from which both practitioners and patients can participate.

Unfortunately, according to a 2022 study done by the CHARTIS group,[59] Missouri, as a state, ranked 41st in terms of uptake of Telehealth services. According to the study, only 6% of Missouri practitioners use Telehealth versus a high in Hawaii of 22%. Although its performance in Telehealth lags behind other states, Missouri has recently changed its parity laws, and there are state and national programs organized to help grow Telehealth services, such as the Missouri

56 https://www.cchpca.org/missouri/?category=private-payer&topic=definitions-private-payer
57 https://www.americantelemed.org/
58 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9035352/
59 https://www.chartis.com/insights/telehealth-now-permanent-fixture-U.S.-healthcare-delivery

Telehealth Network, Show-Me Echo Program, and several Health Resource and Service Administration (HRSA) Telehealth Programs.

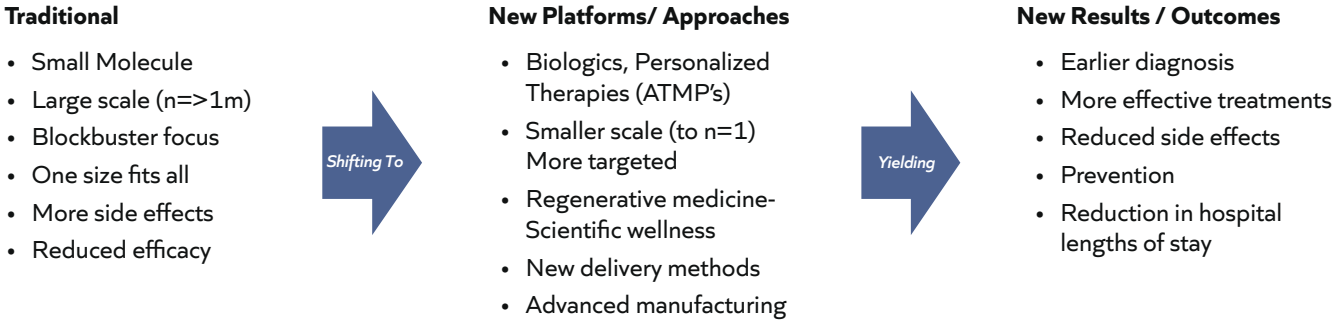
In the Joplin Region, recent Telehealth investments have shown great promise. Key stakeholders point to recent successes at Neosho Hospital, Ozark Behavioral Health and various school located clinics around the region. Given Joplin regional challenges around access to care in the community, Telehealth is clearly a technology to be further expanded moving forward.

Personalized Medicine

Based on the recent progress in human biology and our cutting-edge technologies for studying biological systems, there is increasing optimism about potential breakthroughs that could improve both lifespan and quality of life. The successful sequencing of the human genome in 2003 and the subsequent deepening of our comprehension of the fundamental elements of biological processes (genomics, epigenomics, proteomics, and microbiomics) are revolutionizing the clinical practice landscape.

Although difficult to predict in the short term, the level of investment has been significant with literally trillions being spent across the globe pursuing new solutions. While these approaches and technologies address a broad range of biologic areas, they are increasingly being bundled into the overarching category of "personalized" or "precision medicine." In 2022 alone, the global personalized medicine market was valued at $539M, with a compound annual growth rate estimated at 7.2% through 2030.[60]

Figure A2: Potential Outcomes from Advances in Biotechnology and Precision Medicine



Source: TEConomy Analysis of Grandview Research, "Personalized Medicine Market Share and Research"

Personalized medicine represents a significant departure from traditional approaches, especially in terms of drug therapies. Traditionally, pharmaceutical companies focused on medications developed through chemical synthesis that could treat the greatest number of patients. This was (and still is to a certain extent) the era of the "blockbuster" drug, where one drug could treat literally hundreds of millions of patients (e.g., statins, antihypertensives).

60 https://www.grandviewresearch.com/industry-analysis/personalized-medicine-market#:~:text=Report%20Overview,7.20%25%20from%202023%20to%202030.

Given the biological breakthroughs in genetics, drug therapies are increasingly biological in nature, that is, produced by living organisms. The resulting Biopharma industry seeks solutions that recognize the uniqueness of each person's genetic makeup and the complex variables that trigger illness. This new science is leading to more biologically generated therapies which are far more targeted and individualized, produced at smaller scale but with far greater efficacy. The hope is to identify disease states much earlier, leading to more effective preventative and curative treatment with reduced side effects. Beyond that, the biopharma industry is further transforming through advances in drug discovery, regenerative medicine, new delivery methods and advances in manufacturing and distribution.

The impact on the delivery system will be gradual but widespread. In general, we should see a reduction in acute hospital bed days as populations benefit from these new therapies. Surgical interventions in areas like cancer are likely to be reduced. From a workforce perspective, we will also see further specialization of acute and tertiary facilities, as well as the expansion of new job categories like genetic counseling.

Health EdTech

Health care is a content-rich environment requiring years of focused study to master and effectively apply the lessons learned to real patients with life-threatening illnesses. The average physician spends anywhere from 8-14 years in graduate and postgraduate training (medical school, residency, fellowship) to become a certified clinician in the United States. Nurses also have significant training requirements: 2-4 years undergraduate and 2-4 years advanced practice. Considering the fast-changing landscape of clinical practice and the critical situations clinicians often deal with, there is immense pressure to stay abreast of the latest developments and breakthroughs in the field.

Modern advances in Education Technology (Educ-Tech) are transforming how education is conceived and delivered. In recent years, we've seen five significant technology trends influencing medical pedagogical approaches): Micro-Learning, Virtual Reality/Augmented Reality, Growth in Online, Artificial Intelligence, and Personalized Medicine.

Emergence of Micro-Learning

Micro-Learning refers to the concentration of learning goals and aptitudes to match specific activities, in the case of healthcare, in the clinical environment. Traditionally, curricula were organized into larger areas of study learned over many years and reinforced through on-the-job residencies and internships.

While much of this remains, as tools and interventions advance, we are now able to concentrate and credential skills in smaller, more bite-sized components that can be consumed and applied more quickly and represent more up-to-date knowledge.

These credentials can be tool-based, as in the case of certain surgical or telehealth equipment; informatics-based, as being certified in the use of a specific EMR system; or therapy-based, as in deeper knowledge of chronic disease management.

Micro-credentials allow for a more tailored portfolio of skills that can more precisely fit the needs of a given work environment.

Virtual Reality/Augmented Reality

Significant advances have been made in simulated training for health practitioners in the fields of Virtual and Augmented Reality. Indeed, the medical and nursing schools operating in the Joplin region have sophisticated simulation environments supporting their coursework.

The global Virtual Reality (VR) in healthcare market size is projected to grow from $3.11 billion in 2023 to $25.22 billion by 2030, at a CAGR of 34.9%.[61] With improvements in headset and simulation technology, these tools will become even more targeted and effective, allowing students to learn more quickly, in physical locations convenient to them, and operate more confidently in the day-to-day health delivery environment.

Online Training

Like the virtual nature of Telehealth, online or remote training frees up participants to consume knowledge at a time and place that suits them. There has been significant growth in online clinical training by some measures of up to 30% of class time can be consumed remotely.[62]

Once in place, online training can be more easily standardized and is far more cost-efficient on a cost-per-student basis.

Artificial Intelligence

As mentioned in the previous section, AI will impact both what needs to be learned and the critical tools and applications required to be a caregiver in the 21st century. From a pedagogical perspective, AI has the potential to significantly accelerate learning rates by tailoring specific learning regimes based on user preferences and skill levels.

Personalized Medicine

Finally, as trends in Personalized Medicine play out, EdTech will play an important role in training caregivers for that complex environment.

Caregiver education will become more flexible, tailored to specific caregiver skill levels and each patient's unique needs. Diagnostic and therapeutic pathways will evolve based on patient needs, as will caregivers' ability to interrogate, evaluate, and adapt to those changes. EdTech will play a vital role in real-time learning rather than being limited to scheduled class time.

61 https://www.fortunebU.S.inessinsights.com/industry-reports/virtual-reality-vr-in-healthcare-market-101679
62 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257394

Appendix 3:

Nursing Education and Allied Health Education in the Mokan Region

Providers of Nursing Education in the MOKAN Region. Annual Graduates by Program and Qualification/Degree Awarded.

		Certificates	Associate	Bachelor	Master's degree	Doctoral degree	Grand Total
Nursing Assistant/Aide and Patient Care Assistant/Aide	Crowder College	5					5
	Total	5					5
Licensed Practical/ Vocational Nurse Training	Franklin Technology Center Adult Education	25					25
	Crowder College	8					8
	Total	33					33
Practical Nursing, Vocational Nursing and Nursing Assistants, Other	Carthage R9 School District-Carthage Technical Center	25					25
	Total	25					25
Nursing Practice	Pittsburg State University					18	18
	Total					18	18
Nursing Science	Pittsburg State University				10		10
	Total				10		10
Registered Nursing/ Registered Nurse	Pittsburg State University			140			140
	Crowder College		127				127
	Northeastern Oklahoma A&M College		69				69
	Missouri Southern State University			30			30
	Total		196	170			366

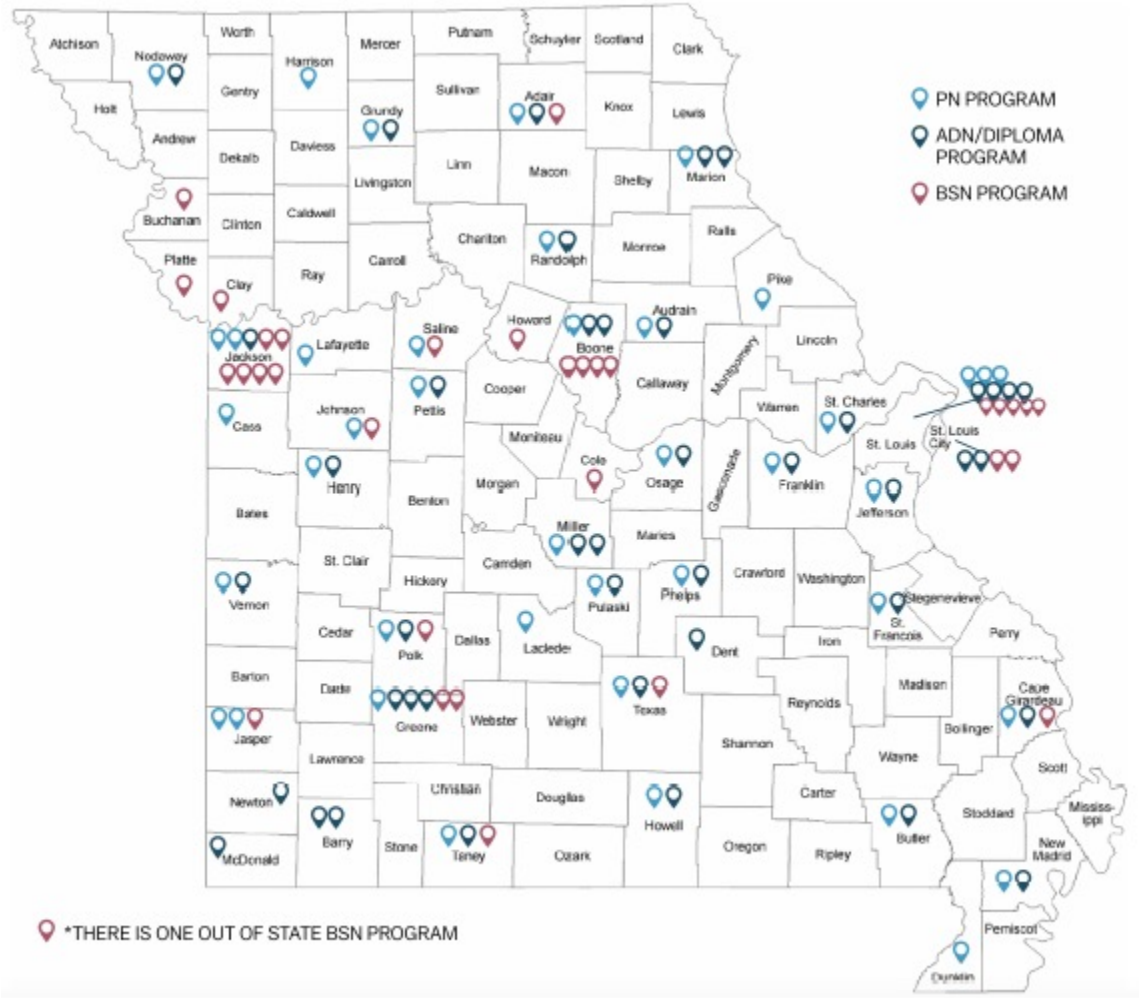
Source: TEConomy Analysis of NCES IPEDS

Providers of Allied Health Education in the MOKAN Region. Annual Graduates by Program and Qualification/Degree Awarded.

		Certificates	Associate	Bachelor	Master's degree	Doctoral degree	Grand Total
Clinical/Medical Laboratory Science/ Technology	Northeastern Oklahoma A&M College		21				21
	Missouri Southern State University			2			2
	Total		21	2			23
Dental Assisting/ Assistant & Dental Hygiene/Hygienist	Missouri Southern State University		22				22
	Franklin Technology Center Adult Education	8					8
	Total	8	22				30
Emergency Medical Technology/ Technician (EMT Paramedic)	Missouri Southern State University	20					20
	Crowder College	12	5				17
	Total	32	5				37
Health Professions and Related Clinical Sciences, Other	Missouri Southern State University			60			60
	Total			60			60
Medical Radiologic Technology/Science - Radiation Therapist	Missouri Southern State University		8				8
	Total		8				8
Other Healthcare Related Degrees	Missouri Southern State University	23		62			85
	Crowder College	3	39				42
	Pittsburg State University			23			23
	Northeastern Oklahoma A&M College		17				17
	City Pointe Beauty Academy	17					17
	Franklin Technology Center Adult Education	6					6
	Total	49	56	85			190
Respiratory Care Therapy/Therapist	Missouri Southern State University		15				15
	Total		15				15

Source: TEConomy Analysis of NCES IPEDS

Figure A3: Missouri Approved Nursing Schools by County



Source: https://pr.mo.gov/nursing-schools-of-nursing.asp


TECONOMY
PARTNERS LLC

Missouri Fire Fighters Critical Illness Pool

Agenda

- Program Summary
- Process
- Organizational Chart
- Covered Cancers
- Firefighter Eligibility
- Benefits for Employers
- Benefits for Covered Individuals
- How to Join
- Frequently asked Questions

Program Summary

The purpose of MFFCIP is to put forth a program that equitably ends numerous years of contentious discussion at the legislature—due to conflicting studies on numerous fire operation's carcinogens in the workplace and their causal relationship to some 17 identified cancers—between labor and management interests over the necessity of an equitable resolution to the issue of presumption of cancer for firefighters.

Process

Legislators in Jefferson City asked interested parties—unions, chiefs, and the insurance community—to discuss and put forth parameters that all could agree on with regard to providing cancer benefits to firefighters in Missouri.

In 2021 Senate Bill 45, sponsored by Senator Lincoln Hough, was introduced to the Missouri legislature with the support of fire operation's labor and management to implement a solution that would see the majority of a $5,000,000 grant of public funds expended on a Cancer Award Program going to the benefit of Missouri firefighters through a self-insured Pool.

In May of 2022, the first participants became covered by the Pool. As of January 31, 2024, the MFFCIP covers 3,240 Firefighters from 96 member agencies.

Next for the MFFCIP

In 2023, following the success of the Cancer Program, Senator Hough then sponsored SB24, which allows for expansion of the MFFCIP to address Behavioral Health issues. This program is currently being built, but some of the objectives include:

1. Best Practices to be shared
2. Sponsorship for regionalized Peer Support Teams
3. Downloadable App for ease of program access
4. List of vetted clinicians who understand the specialized needs of First Responders
5. A Basic and Advanced Program Level
6. Possible cost recovery grants for out-of-pocket expenses

MFFCIP Focus

- The MFFCIP is committed to changing the culture of our industry in how we deal with Cancer and Behavioral Health issues. In addition to the direct benefits for firefighters stricken with cancer, the MFFCIP promotes enhanced protection from prevention policies and the early detection of cancer.
- The behavioral health program focuses on addressing issues faced by first responders, both as they occur and by assisting with the cumulative impact of events over time. Changing the culture is crucial for promptly identifying and discussing situations when they arise, followed by offering a pathway and encouraging peer support, along with inpatient or outpatient care if necessary.

Organization Chart

BOARD OF TRUSTEES

Greg Brown / Chair
EUREKA FIRE PROTECTION DISTRICT / FIRE FIGHTERS ASSOCIATION OF MISSOURI

Cory Hogan / Vice Chair
LOCAL 2665 PROFESSIONAL FIREFIGHTERS OF EASTERN MISSOURI

Kirk Lair / Secretary/Treasurer
CENTRAL JACKSON COUNTY FIRE PROTECTION DISTRICT / WESTERN REGION

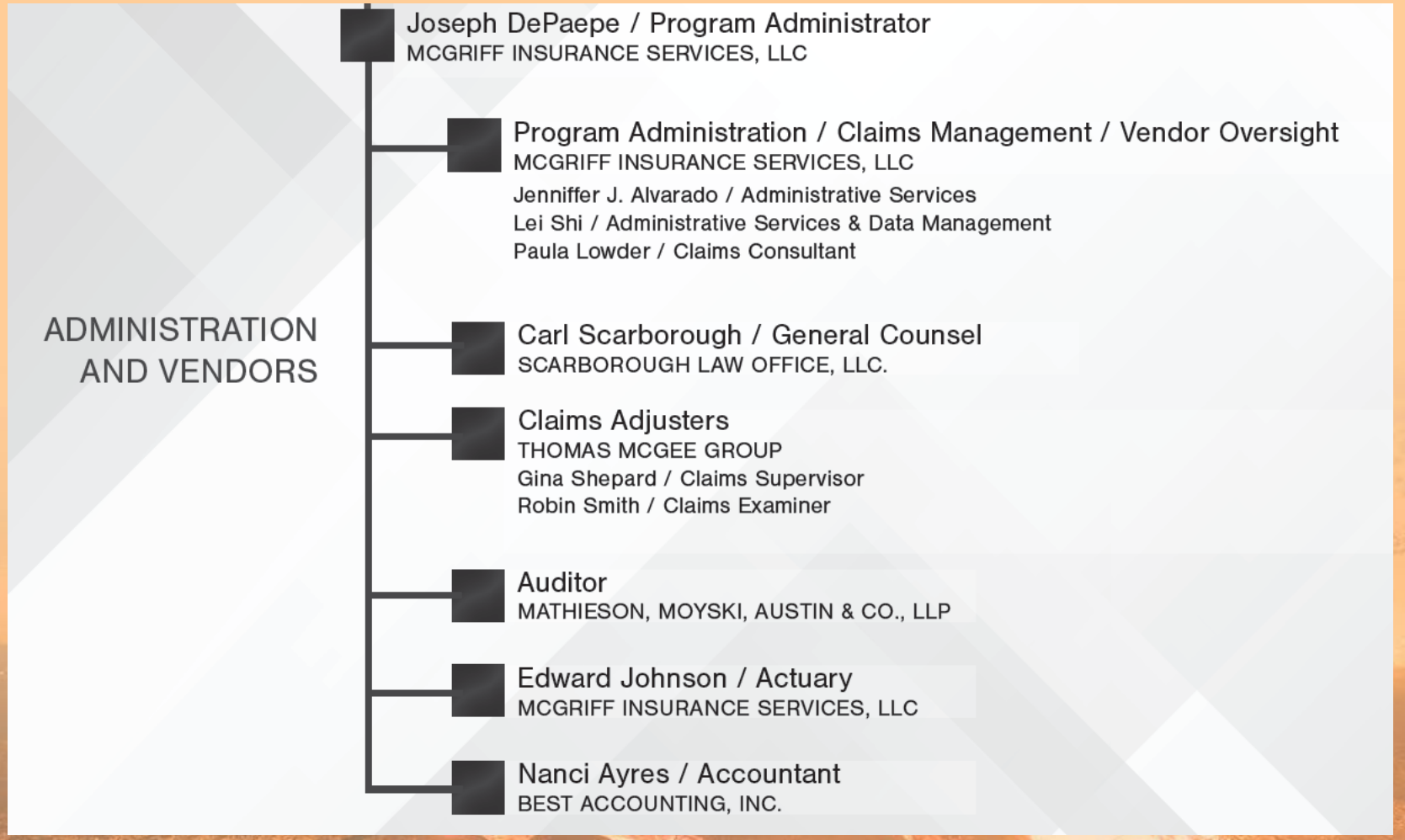
Scott Frandsen
MID COUNTY FIRE PROTECTION DISTRICT / CENTRAL MISSOURI REGION

Sara Jahnke, PH.D.
CENTER FOR FIRE RESCUE & EMS HEALTH REASEARCH

Mike Snider
CITY OF LEE'S SUMMIT / MISSOURI ASSOCIATION OF FIRE CHIEFS

Tom Vineyard
O'FALLON FIRE PROTECTION DISTRICT / EASTERN REGION

Organization Chart



Covered Cancers

Seventeen (17) specific cancers are covered, including:

- Bladder
- Brain
- Breast
- Colon
- Esophagus
- Kidney
- Lung
- Melanoma
- Mesothelioma
- Multiple myeloma
- NHL
- Prostate
- Rectal
- Skin
- Stomach
- Testicular
- Thyroid

Firefighter Eligibility

- Volunteer & Part Time: 5 years of active service with minimum of 24 hours training
- Full Time: 5 years with minimum 1,600 hours training, annually
- Member determines who is eligible within their own definition of *direct provision of fire prevention services*, which may include Dispatch, Mechanics, Community Outreach, or Fire Investigators
- Medical examination: Must be completed some time at or after hire and before the diagnosis

Benefits to Employers in the Cancer Program

- Cap on Liabilities – Participation places a $100,000, $200,000 or $300,000 per claim payout depending on limit chosen
- Retirees covered up to fifteen (15) years after service, or until age 70
- Lower experience modification factors
- Lower Workers' Compensation Primary and Excess Rates – in the long term as cancer claims are not included in rate making
- Improved Employee Relations – Improves relations between firefighters and management as no invasive investigation or litigation to determine whether or not a claim is job-related

Benefits to Firefighters in the Cancer Program

- No more long waits for benefits – Benefits payable upon confirmation of diagnosis and payment is dispensed within ten (10) days of receipt of completed documentation
- Scaled awards based on condition – Firefighters will receive payments based on type and stage of their cancer, not based on court adjudication
- Recognition of service – Cancer will be considered a line of duty event for the purpose of benefit payments without investigation or a determination as to actually being job-related
- Tax-free benefits – Except for rehabilitation payments, awards in the Cancer Program are not taxable

How to Join -

Refer to instructions and checklist to join the Pool

- Quick Calculator is provided for rough calculation of your current year contribution
- Proposals can be provided upon receipt of your estimated number of eligible full-time, part-time and volunteer employees
- Submit our quote form, www.mffcip.org , and a representative will reach out to you
- Completion of the Census Roster, listing your actual eligible firefighters, is required before binding. Coverage is limited to declared individual(s) listed on the roster, except newly eligible after enrollment
- The Required Actions for Prevention of Cancer must be implemented, maintained, and renewed by annual acknowledgment by the Chief
- The District Resolution or Municipal Ordinance accepting the Pool Agreement
- The Trust and Pool Agreement must be signed and received by the Pool Administrator prior to participation being effective
- All members must designate a Member Representative and Alternate Representative

Frequently Asked Questions

Following is a summary of the most asked questions. Much of the following material has already been included in the main presentation.



What is the Cancer Award Program?

This program is a nontaxable accident coverage benefit intended to supplement or pay for the out-of-pocket expenses and provide additional compensation for other benefits, such as experimental treatment, as best determined solely by the firefighter.

Details of this program follow.

1. Pool formation will use existing MO enabling statute section 537.620 within the Uniform Individual Accident and Sickness Insurance Law to form the Pool
2. Cash awards are paid within 10 days of a completed application to include the attending physician's diagnosis
3. Up to $4,000 disbursements are made semi-monthly based on schedule of benefits
4. Payments are made before sick leave and vacation time need to be used
5. Diagnosis for the purposes of this program with the employers' agreement will be treated as an at-work occurrence for the purpose of paying applicable benefits but not prompting a Workers' Compensation work-related claim
6. This program coverage is technically not disability insurance; it is accident coverage
7. This benefit does not exclude the filing of a Workers' Compensation claim; however, any payments made under this program will be offset under Workers' Compensation

What is the organizational structure?

- MFFCIP is owned and operated by Missouri Fire operations appointed board. Stakeholders from numerous organizations address all issues and provide guidance. A steering committee comprised of representatives from fire operations, medical professionals, and insurance industry also provide input.
- Following implementation, the Board has the option to expand to include representation from HR, risk managers, finance, and others as appropriate.

What cancers are covered?

- Seventeen specific cancers are covered:
  - Bladder, Brain, Breast, Colon, Esophagus, Kidney, Lung, Melanoma, Mesothelioma, Multiple myeloma, NHL, Prostate, Rectal, Skin, Stomach, Testicular, and Thyroid
- Other cancers or diseases which adversely affect fire fighters can be added by the Board as new studies or findings are published.
- Smoking or the use of tobacco products reduces benefits by 25%.

What are my choice of limits and cost options?

- Maximum Limits available will be $100K, $200K, or $300K. The fully burdened cost per full-time fire fighter is roughly $100, $200, or $300 annually prior to subsidies in the first three years.
- Part-time and volunteer rates are roughly 70% the cost of full-time rate before subsidies.

How to Join

The Instructions and Checklist to Join the Pool can be found on our website: www.mffcip.org

Please use the QR code to access these instructions as well as the five (5) documents that must be received by the Pool Administrator.

Meet Our Team

Joe DePaepe, CPCU, CIC
Trust Administrator
jdepaepe@mcgriff.com
D: 503-943-6628
M: 503-784-2721

Jenniffer J. Alvarado
Client Service
jalvarado@mcgriff.com
D: 503-943-6632
M: 503-807-0607

Lei Shi, CRM, CIC, AU
Client Service and Billing
lshi@mcgriff.com
D: 503-943-6372

Paula Lowder
Claims Consultant
paula.lowder@mcgriff.com
D: 719-761-3282
M: 719-761-3282

Thank You!

Questions?

www.mffcip.org

FIRST REGULAR SESSION

[TRULY AGREED TO AND FINALLY PASSED**]**

SENATE SUBSTITUTE FOR

SENATE BILL NO. 45

101ST GENERAL ASSEMBLY

2021

0356S.06T

AN ACT

To repeal sections 287.245 and 537.620, RSMo, and to enact in lieu thereof three new sections relating to benefits for certain firefighters as a result of employment as a firefighter.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section A. Sections 287.245 and 537.620, RSMo, are repealed and three new sections enacted in lieu thereof, to be known as sections 287.245, 320.400, and 537.620, to read as follows:

287.245. 1. As used in this section, the following terms shall mean:

(1) "Association", volunteer fire protection associations as defined in section 320.300;

(2) "State fire marshal", the state fire marshal selected under the provisions of sections 320.200 to 320.270;

(3) "Volunteer firefighter", the same meaning as in section 287.243;

(4) "Voluntary firefighter cancer benefits pool" or "pool", the same meaning as in section 320.400.

2. **(1)** Any association may apply to the state fire marshal for a grant for the purpose of funding such association's costs related to workers' compensation insurance premiums for volunteer firefighters.

EXPLANATION-Matter enclosed in bold-faced brackets [thus] in this bill is not enacted and is intended to be omitted in the law.

(2) Any voluntary firefighter cancer benefits pool may apply to the state fire marshal for a grant for the purpose of establishing a voluntary firefighter cancer benefits pool. This subdivision shall expire June 30, 2023.

3. Subject to appropriations, the state fire marshal **[**shall**] may** disburse grants to **[**each**] any** applying volunteer fire protection association **[**according**] subject** to the following schedule:

(1) Associations which had zero to five volunteer firefighters receive workers' compensation benefits from claims arising out of and in the course of the prevention or control of fire or the underwater recovery of drowning victims in the preceding calendar year shall be eligible for two thousand dollars in grant money;

(2) Associations which had six to ten volunteer firefighters receive workers' compensation benefits from claims arising out of and in the course of the prevention or control of fire or the underwater recovery of drowning victims in the preceding calendar year shall be eligible for one thousand five hundred dollars in grant money;

(3) Associations which had eleven to fifteen volunteer firefighters receive workers' compensation benefits from claims arising out of and in the course of the prevention or control of fire or the underwater recovery of drowning victims in the preceding calendar year shall be eligible for one thousand dollars in grant money;

(4) Associations which had sixteen to twenty volunteer firefighters receive workers' compensation benefits from claims arising out of and in the course of the prevention or control of fire or the underwater recovery of drowning victims in the preceding calendar year shall be eligible for five hundred dollars in grant money.

4. Grant money disbursed under this section shall only be used for the purpose of paying for the workers' compensation insurance premiums of volunteer firefighters **or establishing a voluntary firefighter cancer benefits pool.**

320.400. 1. For purposes of this section, the following terms mean:

(1) "Covered individual", a firefighter who:

(a) Is a paid employee or is a volunteer firefighter as defined in section 320.333;

(b) Has been assigned to at least five years of hazardous duty as a firefighter;

(c) Was exposed to an agent classified by the International Agency for Research on Cancer, or its successor organization, as a group 1 or 2A carcinogen, or classified as a cancer causing agent by the American Cancer Society, the American Association for Cancer Research, the Agency for Health Care Policy and Research, the American Society for Clinical Oncology, the National Institute for Occupational Safety and Health, or the United States National Cancer Institute;

(d) Was last assigned to hazardous duty as a firefighter within the previous fifteen years; and

(e) Is not seventy years of age or older at the time of the diagnosis of cancer;

(2) "Dependent", the same meaning as in section 287.240;

(3) "Employer", any political subdivision of the state;

(4) "Voluntary firefighter cancer benefits pool" or "pool", an entity described in section 537.620 that is established for the purposes of this section.

2. (1) Three or more employers may create a voluntary firefighter cancer benefits pool for the purpose of this section. An employer may make contributions into the voluntary firefighter cancer benefits pool established for the purpose of this section. The contribution levels and award levels shall be set by the board of trustees of the pool.

(2) For an employer that chooses to make contributions into the voluntary firefighter cancer benefits pool, the pool shall provide the minimum benefits specified by the board of trustees of the pool to covered individuals, based on the award level of the cancer at the time of diagnosis, after the employer becomes a participant.

(3) Benefit levels shall be established by the board of trustees of the pool based on the category and stage of the cancer.

(4) In addition to an award pursuant to subdivision (3) of this subsection:

(a) A payment may be made from the pool to a covered individual for the actual award, up to twenty-five thousand dollars, for rehabilitative or vocational training employment services and educational training relating to the cancer diagnosis;

(b) A payment may be made to covered individual of up to ten thousand dollars if the covered individual incurs cosmetic disfigurement costs resulting from cancer.

(5) If the cancer is diagnosed as terminal cancer, the covered individual may receive a lump-sum payment of twenty-five thousand dollars as an accelerated payment toward the benefits due based on the benefit levels established pursuant to subdivision (3) of this subsection.

(6) The covered individual may receive additional awards if the cancer increases in award level, but the amount of any benefit paid earlier for the same cancer may be subtracted from the new award.

(7) If a covered individual dies while owed benefits pursuant to this section, the benefits shall be paid to the dependent or domestic partner, if any, at the time of death. If there is no dependent or domestic partner, the obligation of the pool to pay benefits shall cease.

(8) If a covered individual returns to the same position of employment after a cancer diagnosis, the covered individual may receive benefits in this section for any subsequent new type of covered cancer diagnosis.

(9) The benefits payable pursuant to this section shall be reduced by twenty-five percent if a covered individual used a tobacco product within the five years immediately preceding the cancer diagnosis.

(10) A claim for benefits from the pool shall be filed no later than two years after the diagnosis of the cancer. The claim for each type of cancer needs to be filed only once to allow the pool to increase the award level pursuant to subdivision (3) of this subsection.

(11) For purposes of all other employment policies and benefits that are not workers' compensation benefits payable under chapter 287, health insurance, and any benefits paid pursuant to chapter 208, a covered individual's cancer diagnosis shall be treated as an on-the-job injury or illness.

3. The board of trustees of the pool may:

(1) Create a program description to further define or modify the benefits of this section;

(2) Modify the contribution rates, benefit levels, including the maximum amount, consistent with subdivision (1) of this subsection, and structure of the benefits based on actuarial recommendations and with input from a committee of the pool; and

(3) Set a maximum amount of benefits that may be paid to a covered individual for each cancer diagnosis.

4. The board of trustees of the pool shall be considered a public governmental body and shall be subject to all of the provisions of chapter 610.

5. A pool may accept or apply for any grants or donations from any private or public source.

6. (1) Any pool may apply to the state fire marshal for a grant for the purpose of establishing a voluntary firefighter cancer benefits pool. The state fire marshal shall disburse grants to the pool upon receipt of the application.

(2) The state fire marshal may grant money disbursed under section 287.245 to be used for the purpose of setting up a pool.

(3) This subsection shall expire on June 30, 2023.

7. (1) This subsection shall not affect any determination as to whether a covered individual's cancer arose out of and in the course of employment and is a compensable injury pursuant to chapter 287. Receipt of benefits from the pool under this section shall not be considered competent evidence or proof by itself of a compensable injury under chapter 287.

(2) Should it be determined that a covered individual's cancer arose out of and in the course of employment and is a compensable injury under chapter 287, the compensation and death benefit provided under chapter

287 shall be reduced one hundred percent by any benefits received from the pool under this section.

(3) The employer in any claim made pursuant to chapter 287 shall be subrogated to the right of the employee or to the dependent or domestic partner to receive benefits from the pool and such employer may recover any amounts which such employee or the dependent or domestic partner would have been entitled to recover from the pool under this section. Any receipt of benefits from the pool under this section shall be treated as an advance payment by the employer, on account of any future installments of benefits payable pursuant to chapter 287.

537.620. Notwithstanding any direct or implied prohibitions in chapter 375, 377, or 379, any three or more political subdivisions of this state may form a business entity for the purpose **described in section 320.400 or for the purpose** of providing liability and all other insurance, including insurance for elderly or low-income housing in which the political subdivision has an insurable interest, for any of the subdivisions upon the assessment plan as provided in sections 537.600 to 537.650. Any public governmental body or quasi-public governmental body, as defined in section 610.010, and any political subdivision of this state or any other state may join this entity and use public funds to pay any necessary assessments. Except for being subject to the regulation of the director of the department of commerce and insurance under sections 375.930 to 375.948, sections 375.1000 to 375.1018, and sections 537.600 to 537.650, any such business entity shall not be deemed to be an insurance company or insurer under the laws of this state, and the coverage provided by such entity and the administration of such entity shall not be deemed to

constitute the transaction of an insurance business. Risk coverages procured under this section shall not be deemed to constitute a contract, purchase, or expenditure of public funds for which a public governmental body, quasi-public governmental body, or political subdivision is required to solicit competitive bids.

✓

MISSOURI FIRE FIGHTERS
CRITICAL ILLNESS POOL

Missouri Fire Fighter Voluntary Cancer Coverage Award Plan

Plan Summary of Awards

Plan administered by McGriff, Insurance Services Inc.
Effective: March 1, 2022

This Plan Document further defines the awards payable under RSMo sections 287.245, 320.400, and 537.620

Rev 02/18/2022

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This Coverage Plan Document represents coverage under the **Voluntary Cancer Award Program** and shall cover the voluntary and legal liability of **Members** of the Pool established under RSMo sections 287.245, 320.400, and 537.620 as well to defend **Members** from any actions brought by a **Covered Individual** against the **Member** regarding the interpretation of this statute.

This Coverage is intended to be read in its entirety. In order to understand all the limitations to the Schedule of Awards and the applicable provisions/conditions, exclusions to its awards and general definitions please read all of the coverage provisions carefully.

Coverage Declarations	
Coverage Effective Date	January 1, annually or upon execution of Member Resolution, Pool Agreement, and receipt of payment by **Pool Administrator**
Coverage Period	The twelve-month period beginning January 1, at 12:00 a.m. and ending December 31 at 11:59 p.m.
Contribution Due Date	January 1, annually or at the inception of coverage
Contribution	As determined by the **Pool Administrator** annually, subject to prorated changes for midterm adjustments

GENERAL DEFINITIONS

Please note that certain words used in this Coverage Plan have specific meanings. These terms will be capitalized and in bold print throughout the document. The definition of any word, if not defined in the text where it is used, may be found either in this Definitions section or in the *Schedule of Awards*.

Cancer	Means cancer that originates as a cancer of the brain, skin, bladder, colon, rectum, esophagus, kidney, lung, mesothelioma, myeloma, non-hodgkin lymphoma, prostate, stomach, breast, testis and thyroid.
Claim Administrator	Processes claim information, makes claim determinations as respects to Coverage Plan, and makes appropriate payments on behalf of the **Pool.**
Covered Individual	Means a paid **Firefighter** who is Full-Time, **Part-Time**, and **Volunteer** who meets the coverage requirements as defined in Coverage Provision #6.
Directly Involved with the Provision of Fire Protection Services	Means being currently on active duty with fire operations.
Employer	Means an "employer" as defined by RSMo 320.400 (including a municipality, special district, fire authority, or the division of fire prevention) which employs one or more **Firefighters**, **Part-Time Firefighters**, or **Volunteer Firefighters** and participates in the Pool for purposes of providing benefits to all **Covered Individuals** under its employment, pursuant to RSMo sections 287.245, 320.400, and 537.620.

Firefighter(s)	Means a full-time active employee of an **Employer** who regularly works at least one thousand six hundred (1,600) hours in any calendar year and whose duties are directly involved with the provision of fire protection services and who is not a **Volunteer Firefighter**.
Member	Means an **Employer** who has passed a resolution to join this **Pool** and has signed the **Pool's** Trust and Pool Agreement.
Part-Time Firefighter	Means an active employee of an **Employer** who regularly works less than one thousand six hundred (1,600) hours in any calendar year, whose duties are directly involved with the provision of fire protection services and who is not a **Volunteer Firefighter**.
Tobacco Product	Means any product, including a vaping product that is made or derived from tobacco that is intended for human consumption.
Pool	Means the multiemployer Pool described in RSMO 537.620 and RSMo 320.400 established for the purposes of RSMo sections 287.245, 320.400, and 537.620.
Pool Administrator	Means the administrator who provides marketing, underwriting, invoicing, accounting and other membership support services under contract to the **Pool**.
Volunteer Firefighter	Means a **Volunteer Firefighter** as defined in RSMo 287.243, and 320.33.
Voluntary Fire Fighter Cancer Award Program	Means a program to cover the voluntary and legal liability of **Members** of the **Pool** established under RSMo sections 287.245, 320.400, and 537.620 as well to defend **Members** from any actions brought by a **Covered Individual** against the **Member** regarding the interpretation of this statute.

SCHEDULE OF AWARDS

The Pool will pay the awards listed below if the **Covered Individual** suffers from a diagnosis of a covered **Cancer**, subject to the terms, conditions, provisions, and limitations of this Coverage Plan. If the **Covered Individual** sustains more than one diagnosis of a covered **Cancer** simultaneously, awards will be paid for the covered loss for which the largest available award is payable. Please read the Definitions, Exclusions, Coverage Provisions/Conditions, Claims and Administrative provisions in order to understand all of the terms, conditions and limitations applicable to these awards and coverage.

Aggregate Limit	The maximum amount that can be paid to a **Covered Individual** as a result of a diagnosis of a covered **Cancer** is the Member chosen Limit of either Limit A: $300,00, B: $200,000 or C: $100.000 as shown on the Member's current memorandum of coverage.

No more than the Aggregate Limit specified above will be paid for all covered losses suffered by a **Covered Individual** as the result of any one diagnosis of a covered **Cancer** or series of related diagnosis of covered **Cancers**, as specified above.

Regarding Award Level Zero A – F, variable limits apply depending upon assigned award limit. When a **Covered Individual** can show that their actual out of pocket expenses were higher than the scheduled award, then an additional maximum amount may be reimbursed based on remitted Explanation of Benefits or receipts as follows: $3,000 will apply at $300,000 limit; $2,000 at $200,000 limit; and $1,000 at the $100,000 limit. Award Level Zero will **not** be paid in addition to any other applicable Award Level.

Award Level	Coverage Conditions	Applicable Award Limit		
		$300,000	$200,000	$100,000
Zero A	Diagnosis that is covered for $1,000 in treatment and medication paid by the provider	$200	$132	$66
Zero B	Diagnosis that is covered for $2,000 in treatment and medication paid by the provider	$400	$164	$122
Zero C	Diagnosis that is covered for $4,000 in treatment and medication paid by the provider	$800	$528	$264
Zero D	Diagnosis that is covered for $6,000 in treatment and medication paid by the provider	$1,000	$660	$330
Zero E	Diagnosis that is covered for $8,000 in treatment and medication paid by the provider	$1,500	$990	$495
Zero F	Diagnosis that is covered for $10,000 in treatment and medication paid by the provider	$2,000	$1,320	$660

Award Level	Applicable Award Limit		
	$300,000	$200,000	$100,000
1	$4,000	$2,640	$1,320
2	$9,000	$6,000	$3,000
3	$20,000	$13,200	$6,600
4	$28,000	$18,480	$9,240
5	$35,000	$23,100	$11,550
6	$45,000	$29,700	$14,850
7	$75,000	$49,500	$24,750
8	$96,000	$63,360	$31,680
9	$188,000	$124,080	$62,040
10	$249,000	$164,340	$82,170

The following describes the stage of the **Cancer** and the designated Award Level for purposes of awards under this **Voluntary Firefighter Cancer Awards Program**:

STAGE OF CANCER ⇨ / ⇩ TYPES OF CANCER	0	1	2	3	4
Skin Melanoma	**(Award 0)** Abnormal cells are found in the squamous cell or basal cell layer of the epidermis	**(Award 0)** Confined to skin as thick as 10mm	**(Award 1)** Grown thicker up to 4mm, but not spread	**(Award 6)** Has spread to either nearby skin or nearby lymph nodes	**(Award 8)** Has spread to an internal organ, or is found on the skin far from the original melanoma, squamous cell carcinoma, or basal cell carcinoma.
Colon Rectal Esophagus Stomach	**(Award 0)** Limited to the inner lining layer of the stomach and have not grown into deeper layers	**(Award 2)** Has grown into the inner layer of the wall of the stomach, but it has not spread to any lymph nodes or other organs	**(Award 5)** Stage 2 has two types depending on severity of the spread. In general, the cancer is still limited to local tissues and lymph nodes at this stage	**(Award 7)** Stage 3 has two types depending on severity of spread. At this Award, the cancer may/may not spread to nearby organs or structures	**(Award 9)** A cancer of any size that has spread to distant parts of the body in addition to the area around the stomach
Bladder Kidney Prostate Testis	**(Award 0)** No evidence of tumor in the prostate	**(Award 3)** Found in the prostate only and is usually made up of cells that look more like healthy cells and is likely to grow slowly	**(Award 4)** Has not spread outside of the prostate gland, but the cells are usually more abnormal and may tend to grow more quickly. It has not spread to lymph nodes or distant organs	**(Award 6)** Has spread beyond the outer layer of the prostate into nearby tissues. It may also have spread to the seminal vesicles	**(Award 9)** Any tumor that has spread to other parts of the body, such as the bladder, rectum, bone, liver, lungs, or lymph nodes
Brain	**(Award 0)** In general, the cancer cells are still located in the place they started and have not spread to nearby tissues in the brain	**(Award 2)** A separate group of tumors called juvenile pilocytic astrocytoma (JPA). The term "juvenile" refers to the type of cell, not the age of the patient. This is a non-cancerous, slow-growing tumor that is oftentimes curable with surgery. It is different from a low-grade astrocytoma or Grade II glioma, which are likely to come back after treatment	**(Award 5)** Tumor does not have dead cells in the tumor, called necrosis, but shows an abnormally large number of cells, called hypercellular	**(Award 8)** Tumor is hypercellular and has cells that are actively dividing, called mitosis. It is often called anaplastic astrocytoma	**(Award 10)** Tumor is usually a glioblastoma, also called GBM (glioblastoma multiforme). Cells in the tumor are actively dividing, and it has blood vessel growth and areas of dead cells in addition to the factors common to grade II and III tumors

STAGE OF CANCER ⇨ / ⇩ TYPES OF CANCER	0	1	2	3	4
Myeloma **Non-Hodgkin Lymphoma** **Thyroid**	**(Award 0)** Too many lymphocytes in the blood, but no other signs or symptoms of leukemia. Chronic lymphocytic leukemia is indolent	**(Award 0)** Has lymphocytosis and enlarged lymph nodes. The patient does not have an enlarged liver or spleen, anemia, or low levels of platelets	**(Award 3)** Has lymphocytosis and an enlarged spleen and/or liver and may or may not have swollen lymph nodes	**(Award 6)** Has lymphocytosis and anemia. The patient may or may not have swollen lymph nodes and an enlarged liver or spleen	**(Award 8)** Has lymphocytosis and low levels of platelets. The patient may or may not have swollen lymph nodes, an enlarged liver or spleen, or anemia
Breast	**(Award 1)** No evidence of cancer cells outside breast; not invading nearby tissues. Cancer cells are only in the ducts of breast tissues. Non-invasive.	**(Award 2)** Type A: Tumor up to 2 cm confined to breast and lymph nodes are not compromised Type B: Small cancer cells found in lymph nodes but no tumor in breast, or tumors are only 2cm or less in breast	**(Award 5)** Type A: No tumor or small tumor less than 2 cm in breast and cancer cells are found in 1-3 auxiliary lymph nodes; or a tumor between 2 cm and 5 cm in breast but has not spread to lymph nodes Type B: A tumor between 2 cm and 5 cm in breast and has spread to lymph nodes; or a tumor larger than 5 cm but has not spread to lymph nodes	**(Award 7)** Type A: Any tumor size and has spread to 4-9 lymph node Type B: Tumor has spread to chest wall. It may or may not have spread to up to 9 lymph nodes Type C: Any tumor size and has spread to 10 or more lymph nodes	**(Award 8)** Tumor is any size and has spread to other organs
Lung	**(Award 0)** Tumor is only visible in the top layers of cell lining and has not invaded into nearby tissues or lymph nodes.	**(Award 1)** Type A: Tumor is no more than 3 cm and hasn't spread to lymph nodes. Type B: Tumor is between 3-4 cm and hasn't spread to lymph nodes.	**(Award 3)** Type A: Tumor is between 4-5 cm and hasn't spread to lymph nodes but it could have reached main bronchus or the innermost tissue of the lung. Type B: Tumor is less than 5 cm but has reached nearby lymph nodes. Tumor could have reached main bronchus or innermost lung tissue.	**(Award 6)** Tumor is between 5-7 cm or any size. One additional tumor is found in the lung or the cancer is spread to chest wall or other nearby chest tissues.	**(Award 7)** Tumor is any size and has spread to other organs

Additional Awards

Coverage Conditions	Applicable Awards
Payment to the provider for actual cost for rehabilitative or vocational training employment services and educational training relating to the **Cancer** diagnosis;	Up to $25,000
Payment if a **Covered Individual** incurs cosmetic disfigurement cost resulting from a covered **Cancer**; and	Up to $10,000
If the **Cancer** is diagnosed as terminal, the **Covered Individual** will receive a lump sum payment as an accelerated payment toward the awards due in the Awards section above.	Up to $25,000

EXCLUSIONS

In addition to any award-specific exclusion, awards will not be paid for any diagnosis of a covered cancer, or for any claimed loss or expense occurring, arising, or resulting from:

1. Intentionally self-inflicted injury, suicide, or any self-inflicted injury or suicide attempt.
2. Any act of declared or undeclared war unless specifically provided by this Coverage.
3. Travel or activity outside the contiguous United States.
4. Any cancer which was diagnosed in a **Covered Individual** prior to the date of enrollment of **the Covered Individual** in this **Pool**.

COVERAGE PROVISIONS/CONDITIONS

The following provisions and conditions apply and must be met in order for a **Covered Individual** to be eligible for awards hereunder:

1. The **Covered Individual** is entitled to additional awards if the **Cancer** increases in Award Level, but the amount of any award paid earlier for this **Cancer** will be subtracted from the new award.
2. If a **Covered Individual** dies while owed awards under this Coverage Plan, the awards will be paid to the surviving spouse or domestic partner, if any at the time of death, and if there is no surviving spouse or domestic partner, any surviving children equally. If there is no surviving spouse, domestic partner or child, the obligation of the Pool to pay awards will cease.
3. If a **Covered Individual** returns to employment after a **Cancer** diagnosis, the **Covered Individual** is entitled to the awards in the Schedule of Awards in this Coverage Plan for any subsequent new type of covered **Cancer** diagnosis.
4. The awards paid pursuant to this Coverage Plan must be offset by any payments made under the "Workers' Compensation Act Chapter 287, regardless of when the payments are made. The Pool will have the authority to determine how and when the offsets are implemented. Notice to Workers' Compensation Provider will be made.
5. The awards in this Coverage Plan are reduced by twenty five percent [25%] if a **Covered Individual** used a **Tobacco Product** within five [5] years immediately preceding the **Cancer** diagnosis.

6. In order for a **Covered Individual** to be eligible for the awards in the Schedule of Awards in this Coverage Plan, the following conditions must be met:
    a. Prior to the diagnosis of **Cancer** and either in qualifying for a **Firefighter** position or any time after the **Firefighter**, **Volunteer Firefighter** or **Part-Time Firefighter** became employed by an **Employer**, the **Firefighter**, **Volunteer Firefighter** or **Part-Time Firefighter** had a medical examination that would reasonably have found an illness or injury that could have caused the **Cancer** and no illness or injury was found;
    b. Prior to the diagnosis of Cancer, the covered Firefighter/Part-time Firefighter/Volunteer Firefighter must have undergone a physical during pre or post-employment testing or after the date of employment but Prior to the dr. appointment leading to the diagnosis of a covered Cancer.
    c. The **Firefighter**:
        (I) Is a paid employee or is a volunteer firefighter as defined I n section 320.333;
        (II) Has been assigned to at least five years of hazardous duty as a firefighter;
        (III) Was last assigned to hazardous duty as a firefighter within the previous fifteen years; and
        (IV) Is not seventy years of age or older at the time of the diagnosis of cancer.
        (V) A break in service of no more than one [1] year will not be considered a break in continuous full-time employment for purposes of this section. The break in service will not count as part of the five years of service.
7. Where a **Covered Individual** is scheduled under more than one **Member** rosters of this **Pool** only one claim for the same diagnosis will be considered.
8. All **Covered Individuals** must be scheduled annually with the **Pool Administrator** and a **Contribution** must be paid based on the census in order to be eligible to receive an award payment under this Coverage Plan. Newly eligible **Covered Individuals** must be reported on the first census after they have been certified as eligible.

CLAIMS PROVISIONS

Notice of Claim

As the claim is formally established as a liability owed to the **Covered Individual** by the **Employer** and where the rules for a qualifying claim are very specific, the **Covered Individual** must work with the **Employer** to substantiate a valid claim by voluntarily providing necessary qualifying information with the **Employer** by written or authorized electronic notice of claim. This notice of claim must be given to the **Claims Administrator** through the **Employer** no more than three years after a diagnosis of a covered **Cancer** for which awards are sought occurs, or the eligibility is reviewed with the **Employer**. If written or authorized electronic/notice is not given within this period, the claim will not be invalidated or reduced if it is shown that written or authorized electronic notice was given as soon as was reasonably possible. Only one timely claim for each type of **Cancer** needs to be filed to allow the **Pool** to pay or increase the Award Level applicable in this Coverage Plan.

Timely claim notice must be given to the **Employer,** who must immediately contact the **Pool Administrator** at:

Missouri Cancer Award Pool Administrator
c/o McGriff Insurance Services Inc.
P.O. Box 1539
Portland, OR 97207-1539

Website Claim Form: https://www.mffcip.org/claims/
Claim First Report Notice – Toll Free: 888-895-1410 / Fax: 503-943-6622 / mffcip@mcgriff.com

It is important to file claims immediately even if all of the information is not yet known. Notice should include the **Employer's** name, coverage number, and the **Covered Individual's** name, address, contact information, date of event, medical facility, and attending physician along with a signed Medical Release of Information and Waiver form.

Claim Forms

Claim Administrator will send claim forms to either the **Covered Individual** or the **Employer** for filing proof of loss upon receiving notice of a claim. If such forms are not sent within 15 days after the **Claim Administrator** receives notice, the proof requirements will be met by submitting, within the time fixed in this Coverage Plan for filing proof of loss, written or authorized electronic proof of the nature and extent of the loss for which the claim is made.

Covered Individual Cooperation Provision

Failure of a **Covered Individual** to cooperate in the administration of the claim may result in the termination of the claim. Such cooperation includes but is not limited to: providing any information or documents needed to determine whether awards are payable, or the actual award amount due.

Proof of Loss

Proof of loss must include diagnoses documentation furnished by a physician and supported by clinical, radiological, histological, pathological, and/or laboratory evidence. If it is not reasonably possible to provide proof of claim within 90 days after the date of the diagnosis for which an award is claimed or date of covered loss for which an award is claimed, it must be given no more than three (3) years after the date of diagnosis, subject to the provisions of the Notice of Claim section above. These time limits will not apply during any time period the **Covered Individual** or his or her authorized representative lacks the legal capacity to give proof of claim.

Time of Payment of Claims

Pool will pay the Award Level due as follows:

a. Award Level 0 as a lump sum after an explanation of benefits from physician is received;
b. Award Level 1 as a lump sum after adequate proof of loss is filed;
c. Award Level 2 through 10 at a rate of: Plan A; $4,000 B: $2,640 C; $1,320 paid twice monthly from the date of diagnosis, less any applicable offsets; or
d. Immediately after **Pool** receive the proof of loss.

Any award due will be paid when the **Claims Administrator** receives written, or authorized electronic, proof of loss.

Payment of Claims

All awards will be paid in United States currency to the **Covered Individual.**

Denial Review Process.

If a **Covered Individual** and the **Pool** fail to agree on whether benefits under this Coverage Plan are due, the **Covered Individual** may request a review of the denial of benefits, in whole or in part, by submitting a written statement to the **Pool Administrator** within sixty (60) days of the denial; the denial is considered final if no request for review is submitted within sixty (60) days of the notice of denial. The form of the written request, and the details of the review process, are set forth in the Benefit Claims Review Procedure of the **Pool**. The **Pool Administrator** will forward timely written review requests to the Pool Claims Committee, which will provide a written decision within thirty (30) days, unless special circumstances exist for an extension, in which event the written decision shall be made within ninety (90) days. If a **Covered Individual** is dissatisfied with the decision rendered by the Pool Claims Committee, the **Covered Individual** may submit a written request for reconsideration to the Pool Committee. The decision of the Pool Committee is final, conclusive, and binding upon the **Covered Individual** and all other persons thirty (30) days after the decision is issued.

Legal Actions

No action at law or in equity will be brought to recover awards under this Coverage Plan less than 60 days after satisfactory completing the appropriate proof of loss requirement has been furnished as required by this Coverage Plan or until such time that the Claims Administrator, Pool Claims Committee, and the Trustees have each have had 60 days to review the issues involved without reaching an acceptable resolution. No such action will be brought after expiry of the applicable statute of limitations from the time proof of loss is required to be furnished under this Coverage Plan.

ADMINISTRATIVE PROVISIONS

Changes to This Contract

This Coverage Plan and the **Pool** Agreement make up the entire contract between the **Employer**, **Covered Individual**, and the **Pool**. In the absence of fraud, all statements made by the **Covered Individual** or any **Employer** or **Covered Individual** will be considered representations and not warranties. No written statement made by a **Covered Individual** will be used in any contest unless a copy of the statement is furnished to the **Covered Individual** or personal representative. No change in this Coverage Plan will be valid until approved in accordance with the provisions of the **Pool** Agreement governing amendments to the Coverage Plan. The approval must be noted on or attached to this Coverage Plan. No party may change this Coverage Plan or waive any of its provisions.

Coverage Effective Date and Termination Date

Coverage is effective January 1, annually upon a **Member**'s payment of contribution or, for a new **Member**, upon enrollment, which includes the **Pool Administrator**'s receipt of signed Member Resolution and **Pool** Agreement joining the **Pool** as well as payment of contribution.

Pool may terminate coverage on or after the first anniversary of the coverage effective date, and the Employer may terminate coverage on any contribution due date. Written or authorized electronic notice must be given at least 90 days prior to such contribution due date. Termination will not affect a claim for award of a diagnosis of a covered Cancer that occurs while coverage was in effect.

Clerical Error

Clerical error, whether by the **Covered Individual**, **Employer,** or the **Pool** will not deny or void the coverage of any eligible **Covered Individual** that would otherwise have been in effect, nor extend the coverage if that coverage would have otherwise ended or been reduced as provided in this Coverage Plan.

Payment in Error

If an erroneous award payment is made by or on behalf of the **Pool**, the **Pool** may require the **Covered Individual**, the provider of services, or the ineligible person to refund the amount paid in error. The **Pool** reserves the right to correct payments made in error by offsetting the amount paid in error against any future award payments and new claims. The **Pool** also reserves the right to take legal action to correct payments made in error.

Conformity with Law

This Coverage Plan Document shall conform with any determination made by an appropriate jurisdiction regarding changes to the awards payable under RSMo sections 287.245, 320.400, and 537.620.

Request for Proposal (RFP)
Solicitation for Citywide Fiber Optic Network Partnership



Published November 29, 2022
Proposals are due by **5:00 PM CST on January 31, 2023**

Rev. 11/29/2022

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1. Description

The City of Joplin ("the City") published this Request for Proposal (RFP) to solicit proposals from Internet Service Providers (ISPs) and vendors to partner with the City to meet its connectivity goals and further progress towards a Smarter Joplin by bringing fiber-optic broadband to every home and business in the City. Below identifies explicit needs of the City for a successful future partnership. With this partnership, the City would like to address the following requirements:

1.1 The City requests that the future partnership covers all of the City of Joplin.

1.2 The City requests Gigabit technology to be deployed.

1.3 The City requests future partnerships consider connection to city infrastructure.

1.4 The City prefers underground facilities to the maximum extent practicable; however, the City will consider aerial infrastructure with justification. Respondents shall provide approach to meeting this requirement (i.e., new and existing infrastructure).

1.5 The City will potentially make existing publicly owned infrastructure available for consideration in future negotiations.

1.6 The City is keenly interested in affordable rates (lower rates for low-income households) and prefers respondents support the Affordable Connectivity Program (ACP) providing gigabit connectivity to all residents and businesses.

1.7 Respondents must identify if they are self-funded or using City funds. If Respondent is proposing to fund the network, proof of funding specifically for Joplin must be made available. The City will not consider offers where the City funds the entire network.

1.8 Respondents shall provide a detailed financial model (as explained in Section 5 of this document).

1.9 As the City intends to provide resources, including American Rescue Plan Act (ARPA) funds, it is the responsibility of the partner to adhere to all guidelines set by the U.S. Treasury Department. Respondents shall provide an approach to remain compliant.

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2. Background

In September 2018, the City of Joplin assessed whether the City should adopt a "Smart City" approach to support resilient infrastructure, drive socio-economic growth, and enhance the benefits of its citizens and businesses. Through evaluating the City's current state, conducting peer city research, and obtaining design inputs, the City created a Smart City Roadmap ("Roadmap") to help guide community leaders and City staff through the next steps of implementation. The Roadmap was approved by City Council in September 2019.

In 2021, Finley Engineering, Inc. and its partner CCG Consulting conducted a Broadband Gap Analysis that detailed the feasibility of bringing fiber to the City. The Broadband Gap Analysis Report, delivered to the City in October 2021 concluded that one of the best paths forward for the City was to engage in a public-private partnership (P3).

This critical analysis concentrated on three major areas to assess fiber feasibility:

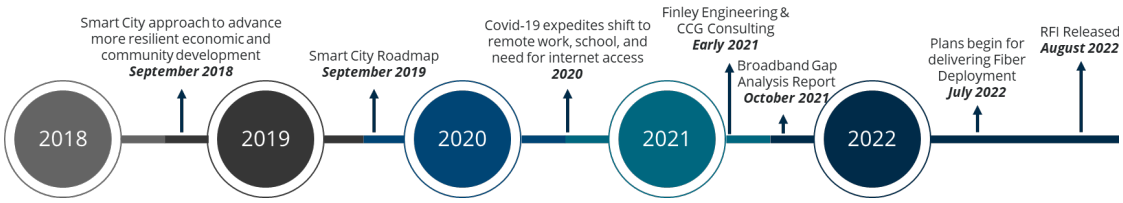
a. an analysis of the Joplin market and the demand for broadband,
b. an engineering estimate of the cost of building fiber across the entire City, and
c. a financial analysis to explore if it is financially feasible for an ISP to build fiber.

The analysis identified the need for the City to approach the broadband market to support in future improvement of connectivity across the community.

In August 2022, the City began to seek a partner interested in helping the City bring fiber-optic broadband to every home and business in the City. The City released a Request for Information (RFI) to open a dialog with interested ISPs or other vendors interested in helping the City meet its connectivity goals and further progress towards a Smarter Joplin.

A timeline representing the key dates is presented in **Figure 1**.

Figure 1: City of Joplin Broadband Initiative Timeline



From the positive response the City received from ISPs, vendors, and potential partners, the City decided to publish this Request for Proposal (RFP). The City continues to recognize there are multiple partnership structures which were highlighted during the RFI process and are commonly negotiated between cities and ISPs. In some cases, ISPs are funding and owning a new fiber network entirely. In other cases, partnerships exist where a City funds some portion of the network (e.g., fiber backbone, empty conduit for ISPs to use), while multiple ISPs use the open-access network.

3. General Proposal Requirements

The City is seeking innovative partners to deploy a citywide open-access fiber network. and requires Respondents to provide the following information:

3.1. Company Profile

3.1.1 Provide a brief executive summary of Respondents proposal.

3.1.2 Provide the name(s), address, email address, and telephone numbers (office and cell) for the person(s) at Respondent that can answer questions regarding responses to RFP and will be involved in potential interviews/negotiations.

3.1.3 Provide detailed information about business structure of the Respondent. If the RFP response involves a partnership between multiple parties, provide the information for each partner, including:

3.1.3.1 Which entity will serve as Prime? The Prime will need to provide the following information and only list the subordinate partners.

3.1.3.2 The legal name of the respondent as is specified in its charter or other organizing/creation document, as well as the state in which the respondent business entity is organized (including DUNS number).

3.1.3.3 Detailed organizational structure of Respondent (e.g., executive, project management, construction, subcontractors). How many people do you employ? How many of these employees work in areas related to telecom or broadband?

3.1.3.4 Discussion of future local presence in City of Joplin.

3.1.3.5 The names and mailing addresses of any parent or subsidiary of the respondent (namely, any other business entity owning or controlling the Respondent, in whole or in part) and a statement describing the nature of any such parent or subsidiary business entity.

3.1.3.6 Please describe any partnership arrangements or other significant business arrangements that are integral to the proposed solution. If proposal includes group of ISPs and/or companies, please explain partnership structure.

3.2. Company Experience

3.2.1 Provide a brief company history, particularly as related to telecom and broadband

3.2.2 Provide any statistics related to Respondents current broadband-business that would be relevant and of interest to the City. This might include such things as the number of retail customers currently served or the number of miles of fiber owned.

3.2.3 Provide the same statistics as item 3.2.2 for operations currently in Missouri.

3.2.4 List all the states where Respondent has retail broadband customers and/or open-access customers.

3.2.5 Description of existing customers and any relevant past performance. If the RFP response involves a partnership between multiple parties, please provide this information for each partner.

3.2.6 Detailed description of Respondent's safety culture and safety record. If the RFP response involves a partnership between multiple parties, please provide this information for each partner.

3.2.7 Provide three (3) references (at a minimum) including entity, name of POC, phone number, email address, and location. If the RFP response involves a partnership between multiple parties, provide this information for the leading partner.

3.3. Project Execution

3.3.1 Provide customer service ratings and description of how Respondent will provide customer service as part of future partnerships.

3.3.2 Provide detailed description of future pricing and guarantees (all rates and products) to City customers (e.g., business, residential, and City government)

3.3.3 Provide the anticipated timeline of execution and connecting the City of Joplin.

3.3.4 Does the Respondent anticipate opening a local business office or does the Respondent have a local business office in place? If Respondent plans to open local business office, please provide its approach.

4. Technical Requirements

The Respondent must meet the following technical parameters. Any details of the engineering design beyond these parameters are at the discretion of the Respondent. Respondent should note in the RFP response if it intends to deviate from any of the following requirements. If Respondent deviates from the requirements, the Respondent shall include a description of the alternate approach and explain briefly why the alternate approach will be adequate.

4.1 A fiber network should be designed to pass every home, business, underserved areas, and government location within Joplin's City Limits.

4.2 The network should be capable of delivering gigabit download speeds and denote upload speeds capable of meeting federal guideline minimums. Respondent must document how technology will be scalable to meet future bandwidth needs to every subscribed customer in Joplin's City Limits.

4.2.1 The design will incorporate a drop network access point (NAP) design that will enable the easy placement of a fiber drop to premises that take service.

4.2.2 The network should be designed so that it will continue to provide the promised broadband speeds at the expected busy hour when the network carries the most local broadband traffic.

4.2.3 The design should include all huts, cabinets, and other network elements needed to make the fiber network functional and ready to accept electronics.

4.3 The City's preference is to use buried fiber. Describe the number of miles of proposed aerial and buried fiber in Respondent plan.

4.4 For buried infrastructure, locating wire must be installed with all buried fiber. All conduits shall be placed at a minimum depth of 36".

4.5 For aerial fiber, Respondent will execute a pole attachment agreement with the owner of any utility or light poles to be used for aerial construction and will adhere to the requirements of such agreements for purposes of performing make-ready work or in placing fiber on aerial poles.

4.6 Respondent shall obtain all needed permits, rights-of-way, and easements from the appropriate government entity for public rights-of-way and from private landowners for private rights-of-way. These shall include, but are not limited to, all authorities having jurisdiction (local, state, and federal), railroad crossings, water crossings, wetland crossings, and road crossings.

4.6.1 Respondent should provide independent inspection of the construction process (meaning the inspectors are independent from, and not employed by the Respondent) so that the constructed network meets the design specification of the network.

4.6.2 Describe proposed process for construction inspection and describe the functional independence of the inspectors.

4.7 Post-construction, Respondent shall provide a copy of the final construction / as-built drawings to the City in shapefile format to the City.

4.8 Respondent shall adhere to all national standards related to fiber construction and fiber electronics (Appendix A).

5. Financial Requirements

The City's goal is to solicit the market for an ISP partner that will fund all or most of a network build. The City will not entertain proposals where the City funds the entirety of the network.

City leaders have prioritized the use of ARPA funds and other potential City resources to aide in strengthening the Joplin's Smart Grid for resiliency, reliability, and redundancy of current broadband systems. These resources may be allocated towards a future P3 at the discretion of the City Manager with approval from City Council on future partnership(s). The intended outcome of this RFP is to progress with the negotiation and development of a collaborative partnership focused on improving connectivity to further Joplin in its Smart City goals.

NOTE: Respondents have the option to keep financial information confidential. If a Respondent wishes to use this option, the Respondent shall respond to the financial questions in this section with a separate document labeled as "Confidential Financial Information." Please note, a Respondent should understand that at some future point, if the City enters negotiation towards a partnership that your financial information might be made public, however, for purposes of this RFP, the City will keep financial information confidential and will circulate only to selected members of the RFP review team.

5.1. Financial History

5.1.1 How long has the Respondent been operating in its current corporate structure?

5.1.2 Provide a copy or link to two most recent audited financial statements for the responding organization. If Respondent is proposing a solution that involves multiple partners, provide financial statements for each partner.

5.1.3 Has the business declared bankruptcy in the last ten years? If yes, explain and describe the current status in relationship to the bankruptcy.

5.1.4 Disclose any lawsuits during the past five years that might have an impact or bearing on a broadband business.

5.2. Ability to Fund the Network

5.2.1 This RFP assumes that the Respondent will finance a substantial portion of the proposed network. Please describe Respondents funding plans by answering the following questions:

5.2.2 What is the estimated cost, or range of costs, needed to build the proposed solution and launch the broadband business?

5.2.3 How much funding is the Respondent seeking from the City as part of its financing plan? At what stage of the project would Respondent expect the City to make the desired contribution?

5.2.4 Please describe the amount of funding that will come from various sources as follows:

Respondent Equity	$
Other Equity	$
Contribution from the City	$
Bank or Other Loans	$
Grants	$
Other	$
Total	$

5.2.5 Provide a brief description of the source and assumptions made for each of the above sources of funding

5.2.6 If the Respondent is proposing to contribute debt or equity to fund the project, provide evidence that the needed funds are available.

5.3. Other Financial Questions

5.3.1 If Respondent wants the City to contribute funding to the network, describe if Respondent is looking for a grant from the City or if the funding is specifically tied to any specific function, such as providing the City with a private network.

5.3.2 Describe any other City assets or services that the Respondent would like to receive from the City.

5.3.3 If the Respondent is proposing any ongoing revenue for the City, describe how and when such payments would be calculated and paid.

5.3.4 Describe any other financial terms and conditions Respondent wants the City to consider.

5.3.5 Please indicate the level of monetary support Respondent will need from the City.

5.3.6 Please provide a detailed list of expectations Respondent would like the City to provide in a potential future partnership agreement (e.g., ROW, permits).

5.3.7 Please describe Respondent's intent and approach to seek and use future grant funding to support the future build of the citywide network.

6. Resources Provided by City

The City has identified key resources to be provided to all Respondents and are provided on the City's procurement website. If Respondents encounter issues with accessing these files, please contact Johan Bullington (JBulling@joplinmo.org).

These resources are (Appendix B):

- Broadband Gap Analysis Study
- Smarter Joplin Roadmap
- Request for Information
- City relevant GIS data
- Joplin Development Code
- Code of Ordinances, City of Joplin

7. RFP Instructions, Definitions, and Schedule

The response should be prepared simply and economically, providing straightforward and concise responses to all questions and addressing all City requirements. False or inaccurate information will result in the rejection of the response. Once a response has been submitted, product substitutions or changes to design, material, or process may not be made without the prior written approval of the City.

RFP Modifications
The City reserves the right to modify or change any information presented in this RFP as more information becomes available. Any RFP modifications will be provided by means of Addendum.

Responsibility for Costs
The Respondent shall be fully responsible for all costs incurred in the development and submission of the proposal or any other costs incurred prior to the issuance of an agreement or contract. The City shall not assume any contractual obligations as a result of the issuance of a proposal request, the preparation or submission of a proposal, the evaluation of proposals or the final selection of a proposal.

RFP Submittal Deadline
The City will accept electronically submitted responses no later than **5:00PM CST on January 31, 2023**. The Respondent should provide a single PDF file unless otherwise indicated (i.e. financial confidentiality). Late submittals will not be considered. All responses must be clearly labeled in the subject of the transmittal email as "RFP for Solicitation for Citywide Fiber Optic Network Partnership". The City urges respondents to initiate email transmittals in advance of the deadline to mitigate risk of nonreceipt.

RFP Questions

All general questions pertaining to this RFP must be submitted by email to:

Johan Bullington
Email: JBulling@joplinmo.org

Deliver the RFP to

All submittals must be submitted directly to:

Johan Bullington
Email: JBulling@joplinmo.org

Respondents that wish to be notified of the responses to questions by other parties should request at the above email address to be added to the list of interested parties.

Any written questions from Respondents must be received no later than **December 9, 2022**. Questions or requests for clarifications received after this deadline will not be answered. The City will provide written answers to all questions and circulate the questions and answers to all known interested parties.

Schedule of Activities

The City has established the following schedule:

Issue RFP	November 29, 2022
Final acceptance for Respondent questions	December 9, 2022
City will respond to all questions	December 22, 2022
RFP responses due	**January 31, 2023**

RFP Format

In order to facilitate a timely and fair evaluation of RFP proposals, a standard response format has been developed and is documented in this section. All Respondents are required to format their proposal in a manner consistent with the guidelines below:

Section	Topic
1	Letter of Transmittal
2	Executive Summary
3	General Requirements ▪ Company Profile ▪ Company Experience ▪ Project Execution
4	Technical Approach
5	Financial Approach
6	Additional Information

The topics must be organized under the specific section as stated above and indicated appropriately. Each topic must be addressed in the proposal, or the proposal may be rejected.

Authorized Representative

Respondent should indicate the name, title, and contact information of the person who will be authorized to enter into an agreement with the City if selected.

Confidentiality

The City shall use reasonable efforts to preserve the confidentiality of any proprietary or confidential information submitted by the Respondent which is clearly designated and identified as such. Given that the City is a governmental entity, it has commitments and obligations subject to "freedom of information" laws or similar statutory disclosure requirements. The City is subject to full compliance with these laws and statutory requirements. Compliance with these laws or statutes shall be deemed not to constitute a breach of requested confidentiality of a given proposal response to the RFP.

Proposal Disposition

Any proposals received in response to this RFP shall become the property of the City.

RFP Response Review

The City will evaluate each Respondent's responses to this RFP. The City's goal is to eventually reach an agreement with one Respondent to build and operate a new broadband network in the City. The City reserves the right to take no action after reviewing responses. The City reserves the right to ask for clarifications of responses to the RFP either in writing or by video conference. The City may eliminate from consideration any Respondent that does not provide response to City questions or does not meet City minimum requirements. The City will notify any Respondents who do not meet our minimum requirements in a timely manner.

The selection committee will review each response based on the categories below independently, and the City reserves the right to reject any proposal that scores poorly on one or more categories. The City expects to conduct interviews with a short list of candidates based on the responses to the categories below.

a. **Company Profile: (10 Points)** Review will emphasize organizational structure, partnership structure, and available resources to construct the citywide network.

b. **Company Experience: (10 Points)** Review will emphasize direct experience and success with delivering similar services as well as integrity, reputation, safety, and efficiency of the Respondent.

c. **Project Execution: (10 Points)** Review will emphasize ability to commence and connect the City of Joplin promptly or within the time specified, without delay or interference. An anticipated timeline of execution and connecting the City of Joplin is required to be provided by the Respondent.

d. **Technical Requirements: (20 Points)** Review will evaluate the Respondent's capabilities and approach to address technical requirements in the RFP. The design should provide a resilient city-wide network meeting national standards related to fiber construction and fiber electronics. The fiber network should be designed to pass every home, business, and government location within Joplin's City limits. The respondent must display an adequate plan for the construction process, minimizing disruptions to the City.

8. General Provisions

Minimum Effective Period of Proposal
All proposals are required to remain in effect for at least 120 days from the date submitted to the City for review. This should be taken into account during budget preparations.

Public Information
All information, documentation, and other materials submitted in response to this solicitation are considered non-confidential and/or non-proprietary and are subject to public disclosure. Respondents may request company specific business and proprietary information not to be released and allowed by Missouri Statute.

RFP Acceptance and Rejection
The City reserves the right to accept any proposal or part of a proposal; to reject any or all proposals; to waive irregularities or informalities in any proposal, in any manner deemed in the best interest of the City.

Presentations and Site Visits
The Respondent may be invited to make a presentation in person or by conference call.

MBE/WBE
Please state whether Respondent or any potential sub-contractors participate in the Minority and Women Business Enterprise Initiative (MBE/WBE).

Type of Contract
The final contract form shall be negotiated between and be mutually acceptable to the parties. Any contract(s) resulting from this effort will be negotiated at the sole discretion of City of Joplin (the "City"), and/or their agents.

Clarifications and Interpretations
Any clarifications or interpretations of this RFP that materially affect or change its requirements will be provided by the City as an addendum. These items must be received by the City 10 days prior to the proposal due date to allow for proper notification. All such addenda issued by the City shall be issued before the proposals are due as part of the RFP, and all Respondents shall acknowledge receipt of and incorporate each addendum in its responses. All additional information or addenda will be posted on the city website at http://joplinmo.org/index.aspx in the left-hand column under Bids/Projects. Please check regularly and/or sign up to receive notifications.

Respondents shall consider only those clarifications and interpretations that the City issues by addenda five (5) days prior to the submittal deadline. Interpretations or clarifications in any other form, including oral statements, will not be binding on the City and should not be relied upon in preparing responses.

No Lobbying
Respondent acknowledges and accepts that from the Date of Issuance of the RFP until a

final decision has been made by the City, it will not take any action, make any effort or support or engage others on its behalf to take actions or efforts with attempt to influence the decision-making process for this RFP in favor of the respondent. This includes direct contact with the City Council, City Manager and staff of the City of Joplin, the selection committee, board members of the Joplin Chamber, and others who may be engaged in the process. Additionally, the Respondent acknowledges and accepts that it will not attempt to use public communication such as the news media, social media, etc. as a means of attempting to influence the RFP evaluation or decision-making process. Any respondent violating any of the aforementioned conditions is subject to immediate disqualification from consideration.

Miscellaneous
Respondent must disclose any potential conflict of interest with the City and any of its employees.

Respondent shall hold all information provided in its response in confidence and shall not reveal its proposal to or discuss its proposal with others until all relevant contracts are awarded. By the submission of a proposal, the Respondent represents and warrants that in connection with the response that no attempt has been made nor will be made to restrict competition, to induce any other person or party to submit, or conspire with any other parties to restrict or otherwise manipulate prices or competition relating to this RFI or any resultant contracts.

The City does not and shall not discriminate on the basis of race, color, religion (creed), gender, gender expression, age, national origin (ancestry), disability, marital status, sexual orientation, or military status, in any of its activities or operations. These activities include but are not limited to, hiring and firing of staff, selection of volunteers and vendors, and provision of services. The City is committed to providing an inclusive and welcoming environment for all members of our staff, citizens, volunteers, contractors, vendors, and clients. The City expects the Respondent to comply with these standards.

Appendix A – National Standards

NATIONAL ELECTRICAL CODE, NFPA 70

The National Fire Protection Association has acted as the sponsor of the National Electrical Code (NEC) since 1911. The original Code was developed in 1897 as a result of the united efforts of various insurance, electrical, architectural, and allied interests. The purpose of the NEC is the practical safeguarding of persons and property from hazards arising from the use of electricity. The NEC provides the minimum code requirements for electrical safety. In telecommunications distribution design, the NEC must be used in concert with the ANSI/EIA/TIA standards identified below, which are intended to insure the performance of the telecommunications infrastructure.

ANSI/TIA/EIA STANDARDS

The Telecommunications Industry Association/Electronics Industry Association (TIA/EIA) engineering standards and publications are designed to serve the public interest by eliminating misunderstandings between manufacturers and purchasers. The standards facilitate interchangeability and improvement of products and assist the purchaser in selecting and obtaining the proper product for his or her particular needs.

The TIA/EIA Standards are updated every five years. Due to the rapid changes in the telecommunications and electronics industries, TIA/EIA publishes periodic Telecommunications Systems Bulletins (TSB), which provide additional guidance on certain technical issues that must be addressed prior to the next scheduled revision of the standards. The information contained in TSBs is usually incorporated into the applicable standard during the next standards revision. Standards and publications are adopted by TIA/EIA in accordance with American National Standards Institute (ANSI) patent policy. The TIA website is: http://www.tiaonline.org/

FIBER OPTIC TEST STANDARDS, TIA/EIA-526 (SERIES)

The TIA/EIA-455 series, together with its addenda, provides uniform test procedures for testing the fiber optic components intended for, or forming a part of, optical communications and data transmission systems. This series contains standard test procedures for optical fibers, cables, transducers, and connecting and terminating devices.

CUSTOMER-OWNED OUTSIDE PLANT (OSP), ANSI/TIA/EIA-758

The ANSI/TIA/EIA-758 provides industry standards for the design and construction of customer-owned OSP infrastructure. Unless specified otherwise by one of the cities, the fiber network should be designed and constructed to be in compliance with ANSI/TIA/EIA-758.

NATIONAL ELECTRIC SAFETY CODE

The NESC sets the ground rules for the practical safeguarding of persons during the installation, operation, or maintenance of electric supply & communication lines & associated equipment. It contains the basic provisions that are considered necessary for the safety of employees & the public under the specified conditions. The NESC continues to be a stronghold in the U.S. electrical industry & communications fields and serves as the authority on safety requirements for power, telephone, cable TV, & railroad signal systems.

Appendix B – Resource Links

Broadband Gap Analysis Study
http://www.joplinmo.org/DocumentCenter/View/10293/Joplin-Internet_Broadband-Gap-Report-v2---10_06_2021-2

Smarter Joplin Roadmap
http://www.joplinmo.org/DocumentCenter/View/9575/Smarter-Joplin-Roadmap-Optimizedpdf

Request for Information
https://www.joplinmo.org/Bids/PlanHolders/646?documentId=10752

City relevant GIS data
https://www.joplingis.org/portal/home/webmap/viewer.html?webmap=29730f3185ea4ad1a6e9c4373fb80aac

Joplin Development Code
https://www.joplinmo.org/DocumentCenter/View/10755/Joplin-Development-Code

Code of Ordinances, City of Joplin
https://library.municode.com/mo/joplin/codes/code_of_ordinances?nodeId=COORJOMI

Solicitation for Citywide Fiber Optic Network Partnership

REQUEST FOR PROPOSAL

JANUARY 31, 2023

PREPARED FOR:

City of Joplin
Attn: Johan Bullington, CDBG Project Manager
602 S. Main Street
Joplin, MO 64801

Section 1 - Letter of Transmittal

January 31, 2023

Johan Bullington
CDBG Project Manager
City of Joplin
602 S. Main Street
Joplin, MO 648014

Johan,

Thank you for the opportunity to respond to the City of Joplin's Request for Proposal for a Citywide Fiber Optic Network Partnership. ALLO Communications ("ALLO") is interested in partnering with the City to meets its connectivity goals and further progress towards a Smarter Joplin by bringing fiber-optic broadband to every home and business in the community.

ALLO is a telecommunications company offering world-class Fiber-to-the-Premise networks for superior broadband, internet, television, and telephone to residents, businesses, and government entities. ALLO's fiber networks expand business opportunities, create jobs, and improve the quality of life for our customers.

ALLO's growth and success over the past two decades is evidence of our technical capabilities, experienced personnel, superior products, and unmatched reputation for customer service. Our modern network, expert team of engineers, operators, and technical specialists combine with the immense capacity of ALLO's fiber network to provide unparalleled service to our partner communities.

ALLO has recently won numerous national and local awards for our service. It is our goal to change the standards for the industry and help move communities forward by bringing the benefits of a fiber optic network.

With a deep fiber experience serving cities totaling 1 million in population, ALLO has the experience, expertise, and current solutions to partner with the City of Joplin to deploy a successful network.

Sincerely,



Bradley A. Moline
President, ALLO Communications
330 South 21st Street| Lincoln, NE 68510
brad.moline@allofiber.com | 308.633.7802

Section 2 - Executive Summary

ALLO Communications is interested in partnering with the City of Joplin to bring fiber-optic broadband to the community. The project will establish and accelerate the enhancement of broadband infrastructure in the area by providing reliable high-speed broadband service through an all Fiber-to-the-Premise (FTTP) network.

The business approach ALLO intends to use for the Joplin project will mirror the approach used in our other markets. In many of ALLO's markets, the business model includes all stages of the project, from design through construction to sales, installation, and ongoing support. ALLO's process often reduces the overall cost of construction by more than 30%.

ALLO will work with Joplin to ensure the viability of the project. An agreement will be structured based on this determination, including clear roles, responsibilities, and financial commitments.

ALLO Preferred Option – A Full-Service Solution

Design & Feasibility – ALLO will design the network using our playbook, auto-design programs, and available GIS information for the community and existing utilities to provide an optimized plan for ubiquitous fiber coverage in Joplin with a specific focus on utilizing the City's current infrastructure.

An integral part of this process includes collaboration with Joplin to gain local knowledge and expertise, including detailed knowledge of city-owned assets, construction requirements, upcoming capital projects, and permitting processes.

The City's willingness to offer a streamlined permitting process and ROW options will be very helpful in the process.

The network construction cost will continue to be refined with a reasonable, safe build interval. Once the project and financial arrangement are approved by all parties, ALLO's proven construction management processes will be utilized in order to minimize construction and operational risk as well as reduce overall costs.

The current GIS design will be finalized with inputs from local utility experts and the ALLO construction team, resulting in a final comprehensive design for the defined area.

Construction Process – The construction process will be managed by ALLO with ALLO construction personnel supported by a third-party construction contractor. The construction vendor selection process will focus on contractors and managers that are familiar with the region and ALLO's construction and safety expectations. ALLO will provide oversight of these contractors to ensure the network is built to the designed specifications.

Quality will be checked by the City, ALLO, and others to verify appropriate construction standards, meet budget expectations, and ensure completion timeliness. The construction of a highly dependable network in a cost and time-efficient manner is the goal for all involved. Safety is a focus throughout the project.

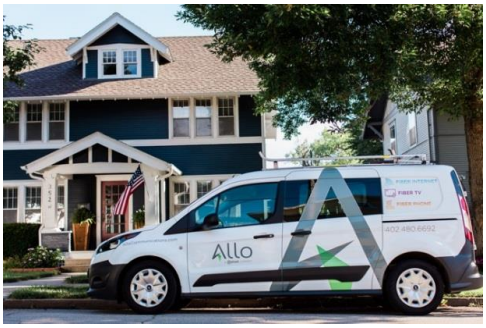
Connection to ALLO's Service Platform and Network Operations Center – Concurrent with the construction effort, redundant connections to ALLO's service platform and Network Operations Center (NOC) will be completed. The connections will enable ALLO's NOC and service platform for the City.

Service Launch – Approximately six months after the start of construction, customers located in the initial service areas will be connected to the network. ALLO will provide a full suite of products and services using our existing service model.

Customer Connections – Connections from the easement to the home or building will be powered using a common GPON solution. A homogenous network ensures a cost-efficient design with network dependability and security. ALLO utilizes a Calix GPON solution from the central office to the Wi-Fi6 router.

Connectivity for large businesses and large governmental entities will be provided with individualized solutions (such as Calix, Adtran, and Cisco), including active Ethernet connections and fully redundant paths and entrances, when required. The standard network design will accommodate both GPON and active solutions.

Installation - Operating inside of a customer's home or business is a unique challenge. ALLO has proven business processes and cultural norms that ensure a positive experience for the community.



ALLO will be responsible for the installation of equipment and services to the customer premises.

ALLO installs a full suite of residential, business, and governmental products including internet, broadband transport, video, voice services, and voice equipment over fiber transport. Our systems are proven, cost-efficient, and drive high customer satisfaction results.

Customer Service – With more than 1,300 existing customer support personnel, ALLO's solution provides customer service excellence and is extremely scalable. Technicians, customer service representatives, sales engineers, and sales personnel hired and located in the area will be supported by ALLO's 24/7/365 NOC and existing customer service representatives to ensure the network is performing for all customers.

ALLO's Operations Support Systems and Billing Support Systems, along with other technical and analytical tools, work together to provide the efficient operation of the world-class network.

Summary

ALLO's proven business model and experience provide the lowest risk and greatest benefit to Joplin and the community. The solution involves minimal technical, operational, and execution risk, and is proven through successful implementations and operations in ALLO's existing communities.

ALLO requires that design, network technology, construction oversight, and network operations be led by our experienced, professional team. A consistent operational model will result in ALLO's award-winning service, consistency, and excellence for the City of Joplin.

Section 3 – General Proposal Requirements

The City is seeking innovative partners to deploy a citywide fiber network and requires Respondents to provide the following information:

3.1 Company Profile

3.1.1 Provide a brief executive summary of Respondents proposal.

Please refer to the Executive Summary section at the beginning of the response.

3.1.2 Provide the name(s), address, email address, and telephone numbers (office and cell) for the person(s) at Respondent that can answer questions regarding responses to RFP and will be involved in potential interviews/negotiations.

Jody Hoops
New Markets Administrator
330 South 21st Street
Lincoln, NE 68510
Email: jody.hoops@allofiber.com
Phone: 402.770.5280

Brad Moline
President
330 South 21st Street
Lincoln, NE 68510
Email: brad.moline@allofiber.com
Phone: 308.633.7802

3.1.3 Provide detailed information about the business structure of the Respondent. If the RFP response involves a partnership between multiple parties, provide the information for each partner, including:

3.1.3.1 Which entity will serve as Prime? The Prime will need to provide the following information and only list the subordinate partners.

ALLO Communications will serve as Prime on this project.

3.1.3.2 The legal name of the respondent as is specified in its charter or other organizing/creation document, as well as the state in which the respondent business is organized (including DUNS number).

ALLO Communications LLC (DUNS: 14-452-5420) is a certificated telecommunications provider organized in the State of Nebraska.

3.1.3.3 Detailed organizational structure of Respondent (e.g., executive, project management, construction, subcontractors). How many people do you employ? How many of these employees work in areas related to telecom or broadband?

ALLO employs more than 1,300 associates located throughout our corporate offices in Lincoln and Imperial Nebraska; as well as business locations in our communities in Missouri, Nebraska, Colorado, and Arizona. As ALLO is a telecommunications company, all employees work in areas related to telecom/broadband.

See **Appendix A** for a high-level ALLO Organizational Chart.

The ALLO organizational structure is organized by function. As an example, residential technicians, drop technicians, residential customer experience, digital marketing, inbound sales, front office, and door-to-door representatives roll up to the residential function.

A general breakdown follows:

Department	Employees
Construction/OSP	306
Technicians	290
Customer Service Representatives	228
Sales/Marketing	123
Drop Crew	102
Administration	64
Inventory	50
Design	45
Network Team	44
Avid	38
Human Resources and IT	31
TOTAL	**1,321**

Leadership Team

ALLO's corporate leadership team follows. These individuals provide focus across all functions and lead more than 1,300 ALLO associates.

Brad Moline serves as President and Chief Executive Officer. Under his management, ALLO has successfully provided (or is in the process of providing) FTTP services to 38 communities throughout Nebraska, Colorado, and Arizona.

Allison O'Neil serves as Chief Experience Officer for ALLO and has been with the company for more than 18 years. Allison manages every aspect of the customer experience, ensuring we are meeting the expectations of both residential and business customers.

Nate Buhrman serves as Chief Financial Officer. Nate oversees finance and accounting functions for the company including internal controls and financial planning and analysis.

Don Schoening serves as Chief Field Services Officer for ALLO and has more than 30 years of experience. Don manages the outside and inside installation technicians and leads ALLO's safety and COVID-19 response teams.

Todd Heyne serves as Chief Construction Officer and is responsible for evaluating and optimizing fiber optic outside plant construction. Todd's experience managing ALLO's 300+ person construction team and 600+ person contractor crew provides valuable insight for the evaluation of designs for constructability and cost efficiency.

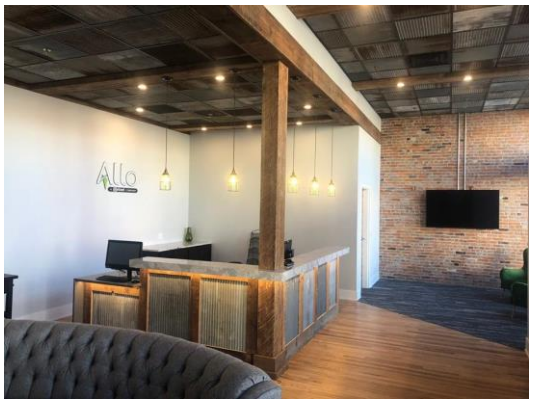
Al Schroeder serves as the Director of Outside Plant Engineering. Al has decades of experience working in and leading teams performing outside plant design and

construction. Al is a registered professional civil engineer and is an expert in aerial, buried, and underground Fiber-to-the-Home designs.

Al oversees the design, permitting, and as-built records for our projects. His team completed and delivered the designs for our Lincoln community, allowing the project to complete two years ahead of schedule while staying on budget.

Wade Hartel is the head of ALLO's Project Management Office (PMO), which oversees all new market launch projects for the company. Prior to forming the PMO, Wade served as a Construction Manager for ALLO, leading a team of 40+ associates.

3.1.3.4 Discussion of future local presence in City of Joplin.



One of ALLO's four core values is to be "local". To support this core value, we will open an office in Joplin, as we have done in our other communities. ALLO's decentralized model focuses on local support. The organizational structure that is specific to Joplin will be developed to have the appropriate number of personnel and management for the project.

ALLO will employ local teammates in the Joplin region in the areas of customer service, fiber splicing, technicians, sales, and related management. We expect to employ approximately 45 people on a permanent basis. During construction, the employment levels will be higher especially when accounting for the construction contractors.

Our local sales and marketing model includes sales offices, salespeople, and community involvement. We find it valuable to operate local and approachable sales offices where customers can test-drive services, ask questions, or have experts design tailored solutions to meet unique needs.

ALLO maintains employment levels in our communities to provide a strong local experience. Sales and marketing become more important as the operation matures. The best way to compete long-term and to keep and grow our customer base is through local sales and service backed by industry-leading customer service, as proven in the markets that ALLO serves today.

3.1.3.5 The names and mailing addresses of any parent or subsidiary of the respondent (namely, any other business entity owning or controlling the Respondent, in whole or in part) and a statement describing the nature of any such parent or subsidiary business entity.

ALLO's ownership includes SDC Capital and Nelnet (NYSE: NNI). The collaboration provides ALLO with access to additional capital from SDC and Nelnet to continue expanding its all-fiber-optic network and superior service offerings.

SDC Capital
810 Broadway, 10th Floor
New York, NE 10003

Nelnet
121 S. 13th Street, Suite 100
Lincoln, NE 68505

3.1.3.6 Please describe any partnership arrangements or other significant business arrangements that are integral to the proposed solution. If proposal includes group of ISPs and/or companies, please explain partnership structure.

Please see the response for Question 3.1.3.5.

3.2 Company Experience

3.2.1 Provide a brief company history, particularly as related to telecom and broadband.

3.2.2 Provide any statistics related to Respondents current broadband-business that would be relevant and of interest to the City. This might include such things as the number of retail customers currently served or the number of miles of fiber owned.

The below response answers Questions 3.2.1 and 3.2.2.

ALLO Communications is a telecommunications company offering internet, broadband, telephone, and television to residents and businesses through fiber-based networks.



ALLO has designed, constructed, maintained, and provided services for ubiquitous FTTP networks since 2004 and continues to operate in markets totaling approximately 1 million in population. Cities with populations of 1,400 to 290,000 are included in this total, representing the depth of our model.

We began expanding our network throughout Nebraska, Colorado, and Arizona with a passion for providing greater access and a goal to close the digital divide. We are making a substantial economic impact in our communities with our fiber network, helping to meet the technology needs of businesses and residents.

ALLO has more than 130,000 lines of service all through FTTP. ALLO's offerings provide service to government entities, businesses, schools, and residents creating gigabit societies. ALLO has invested more than $400 million in FTTP assets in 38 communities and generates more than $100 million in annual revenue.

Our growth and success are reinforced by a stellar reputation for customer service, technical capabilities, experienced personnel, and superior products. We provide customers with the most modern network while employing a team of engineers, operators, and technical experts who are constantly working with customers to develop creative ways to utilize the immense capacity on ALLO's fiber network and better serve our customers.

3.2.3 Provide the same statistics as item 3.2.2 for operations currently in Missouri.

ALLO recently purchased Avid Communications based in Kansas City, Missouri. Avid provides advanced business services to customers in Kansas City, Des Moines, and soon ALLO's Nebraska, Colorado, and Arizona markets. Avid, a subsidiary of ALLO, has 30 employees located in the Kansas City metro area.

ALLO is willing to develop an operation in Joplin, as we have done in our other markets. As an example, we recently entered Arizona and are in the process of building several communities.

ALLO is currently in the process of filing an application with the Missouri Public Service Commission for authority to operate as a CLEC in Missouri.

3.2.4 List all the states where Respondent has retail broadband customers and/or open-access customers.

3.2.5 Description of existing customers and any relevant past performance. If the RFP response involves a partnership between multiple parties, please provide this information for each partner.

The below response addresses Questions 3.2.4 and 3.2.5.

ALLO provides (or is in the process of providing) ubiquitous gigabit services in the following communities:

City/State	Date	Population[1]
Lincoln, NE	2015	292,657
Yuma County, AZ	2022	206,990
Greeley, CO	2021	109,323
Bellevue, NE	2022	63,737
Lake Havasu City, AZ	2021	58,284
Grand Island, NE	2021	52,335
Kingman / New Kingman-Butler, AZ	2022	46,729
Brighton, CO	2022	40,693
San Luis, AZ	2022	37,333
Kearney, NE	2021	33,959
Erie, CO	2022	31,686
Fremont, NE	2021	27,373
Hastings, NE	2018	25,037
Norfolk, NE	2020	24,967
Columbus, NE	2021	24,123
Papillion, NE	2022	24,105
North Platte, NE	2011	22,978
La Vista, NE	2022	16,648

[1] Population totals via 2021 U.S. Census Bureau

City/State	Date	Population[1]
Scottsbluff, NE	2005	14,282
Fort Morgan, CO	2018	11,439
York, NE	2022	8,133
Seward, NE	2022	7,693
Gering, NE	2006	8,435
Alliance, NE	2007	7,971
Sidney, NE	2022	6,439
Wayne, NE	2021	5,990
Eaton, CO	2022	5,868
Breckenridge, CO	2019	5,024
Gretna, NE	2022	5,088
Ogallala, NE	2010	4,878
Waverly, NE	2022	4,279
Ashland, NE	2022	3,086
Hudson, CO	2021	1,651
Valentine, NE	2021	2,633
Milford, NE	2022	2,155
Imperial, NE	2019	2,068
Bridgeport, NE	2010	1,454

In each community and region, ALLO designs and builds a competitive network becoming the preferred solution for residents, businesses, and governments, while typically maintaining ownership and always operating the network.

Gigabit service is available to homes and small businesses in all markets, and large and governmental entities are provided with solutions to meet their needs (100 Gbps+ capability). ALLO is deploying NGPON2 (next-generation PON) architecture capable of providing 10 Gbps service in ALLO's existing and future markets.

Additional customer information is provided earlier in this section.

Summaries for two of ALLO's most successful projects in Lincoln, NE and Fort Morgan, CO are provided below.

Lincoln, Nebraska

In November 2015, the City of Lincoln announced its partnership with ALLO to build a 100 percent fiber optics-based infrastructure. With a population of almost 290,000, Lincoln is ALLO's largest project to date, and is one of the most significant fiber builds in the United States.



The Lincoln fiber network is an all-underground ubiquitous build. ALLO is utilizing the City's 300+ miles of conduit in major arterials and is leasing them from the city, providing a cost-effective solution to customers. Without the use of the conduits, the project would not be financially possible. By working together to meet the unique needs of the city, the project was substantially completed in less than three years.

The city was constructed with ubiquitous passings between May 2016 and April 2019. Today, Lincoln has more than 70,000 customer units on fiber serving households, businesses, and governmental entities.

Ongoing operations are ALLO's strength as Lincoln has recently been ranked as the 3rd fastest upload speeds and 10th fastest download speeds of the largest 100 cities in the nation (speedtest.net).

ALLO's customer service record and sales rates have been outstanding in Lincoln, exceeding our expectations.

Fort Morgan, Colorado



In late 2017, ALLO announced a public-private partnership with the City of Fort Morgan and began building the city's ubiquitous fiber network in April 2018. The electric utility (Fort Morgan Utilities) constructed its fiber network based on ALLO's design, engineering, construction process, and quality assurance.

Fort Morgan funded and managed the construction of the network. ALLO is leasing the network from Fort Morgan and assisted with the design and contractor selection, managed the completion of the network with fiber drops to homes and businesses, and provided installation services. ALLO is operating Fort Morgan similar to our wholly owned communities and is responsible for marketing and customer service.

The Fort Morgan buildout was completed in eight months.

3.2.6 Detailed description of Respondent's safety culture and safety record. If the RFP response involves a partnership between multiple parties, please provide this information for each partner.

ALLO promotes an Exceptional and Hassle-Free outcome-oriented safety culture. ALLO maintains quality control audits ensuring organization compliance with OSHA, Department of Transportation, and other local, state, and federal safety requirements.

To ensure compliance with all OSHA requirements ALLO has a dedicated Safety Manager as well as local safety team members on job sites to oversee safe working conditions. The safety team delivers preemptive and prescriptive training at a corporate and local level on a weekly basis. All specialized workers are properly credentialed including lift training, ladder certification, compliance with DOT requirements, forklift certification, and underground locator certification.

Our safety culture also includes a Safe Driver Program and investigation of near miss and reportable accidents, injuries, and job damages.

ALLO has no recorded OSHA or other workplace safety violations over the past three (3) years.

3.2.7 Provide three (3) references (at a minimum) including entity, name of POC, phone number, email address, and location. If the RFP response involves a partnership between multiple parties, provide this information for the leading partner.

ALLO certifies that it is empowered to use the names of the references provided and agrees that the City of Joplin may contact these references.

Municipality	City of Lincoln
Contact Information	Abigal Eccher, Chief Information Officer 949 W. Bond St., Ste. 100B Lincoln, NE 68521 aeccher@lincoln.ne.gov | 531-530-9364
Project/Services	Voice, internet, television, and metroEthernet services
Length of Project	2015 – Present

Municipality	City of Fort Morgan
Contact Information	Brent Nation, City Manager 110 Main Street Fort Morgan, CO 80701 brent.nation@cityoffortmorgan.com | 970-542-3973
Project/Services	Voice, internet, television, and metroEthernet services
Length of Project	2018 – Present

Municipality	City of Fremont
Contact Information	Joey Spellerberg, Mayor 400 E. Military Ave. Fremont, NE 68025 Joey.Spellerberg@fremontne.gov| 402-919-1805
Project/Services	Voice, internet, television, and metroEthernet services
Length of Project	2021 – Present

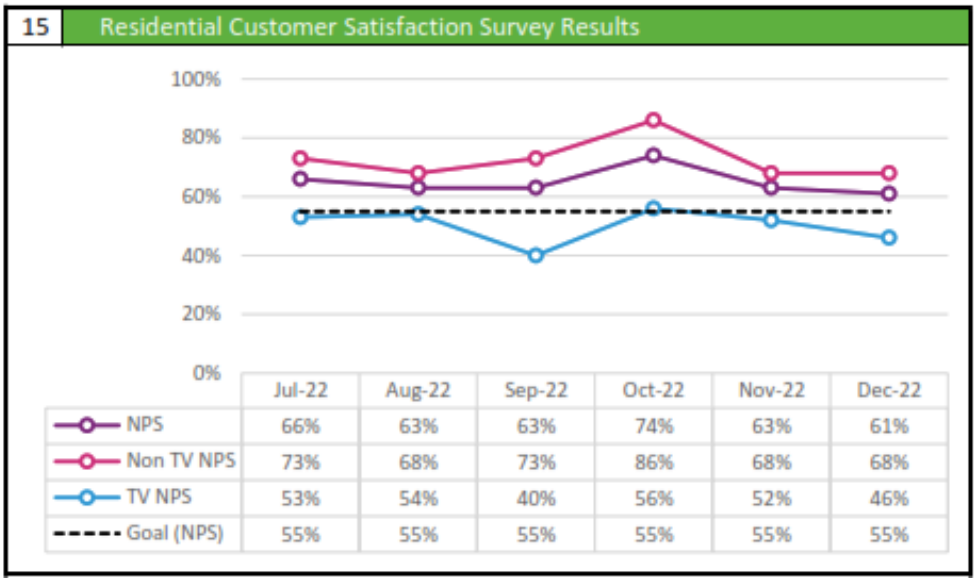
3.3 Project Execution

3.3.1 Provide customer service ratings and description of how Respondent will provide customer service as part of future partnerships.

The success of a support and customer service organization can be objectively viewed by churn statistics and Net Promoter Score (NPS). With our telecom background, service levels are generally far superior to other providers due to our culture, training, systems, redundancy, experience, and scale.

Annual competitor churn is traditionally less than 5.0% residential and 2.0% business. Churn refers to the loss of an ALLO customer to one of our competitors. In addition,

ALLO's NPS score is consistently over 60. In recent months, ALLO's **NPS score has been between 61 and 74** - almost unheard of in the telecom industry.



	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
NPS	66%	63%	63%	74%	63%	61%
Non TV NPS	73%	68%	73%	86%	68%	68%
TV NPS	53%	54%	40%	56%	52%	46%
Goal (NPS)	55%	55%	55%	55%	55%	55%

Figure 1 – ALLO's outstanding NPS Score is a benchmark in the telecommunications industry.

ALLO's low churn rate and high NPS score reflects all aspects of our company, including product and customer service, as our customers choose ALLO over our competitors. These industry-leading metrics are ALLO's most valued Key Performance Indicators and illustrate our ability to provide exceptional customer experiences and the loyalty of our customer base.

Customer satisfaction surveys are conducted via an online form. The NPS is calculated after several touch points, as shown below. The surveys include customer metrics with ratings scales and comments areas to allow the customer to elaborate on any areas of concern.

ALLO documents and conducts reviews of the customer metrics and comments, including complaints, to ensure that issues are handled in a timely manner. The results help us determine areas that need improvement; service levels are adjusted accordingly to meet service commitments and maintain quality of service.

Survey	Trigger	Frequency
Installation Survey	48 hours from install	Daily
First Bill Survey	5 days after first bill	Twice Monthly
Tech Support Survey	7 days post resolution date	Daily
Customer Satisfaction Survey	One year service anniversary; Annually thereafter	Monthly

Online links to the surveys follow:

Installation Survey:

https://www.surveymonkey.com/r/Preview/?sm=qBDb5dSqJo6lDlER_2FpGe20x3kYoDJBkIQWpQVVL0nml0eUMstNC0MShfmAwHoJzu

First Bill Survey:

https://www.surveymonkey.com/r/Preview/?sm=MT3ETN3P2Q0TcgiHr5DKxi7tcHXDAWgVnOp2lpBfwpYlzUZSoPJO93lljdZNK9Ze

Tech Support Survey:

https://www.surveymonkey.com/r/Preview/?sm=FApZkeF6tVFCYxThS7xp1ViZGFwhaah0PRKEIM80Ts5DZc4omNOmvFn9BTnk0NTR

Customer Satisfaction Survey:

https://www.surveymonkey.com/r/Preview/?sm=WGUIY6HH_2F0IqnUpBSzqsd_2BWVHLhtoTR20f17o5r5F0YopGL5Sq4eEkdj75hR5W7O

Customer Service/NOC

ALLO's customer service and support are the cornerstones of the customer experience. Proven processes and service expectations have resulted in our high customer acquisition and retention record.

ALLO will utilize our proven products and service model to support customers. With an experienced team of 1,300+ customer support personnel, ALLO's solution provides customer service excellence and is extremely scalable. Technicians, customer service representatives, sales engineers, and sales personnel hired and located in the area will be supported by ALLO's 24/7/365 NOC and existing customer service representatives to ensure the network is performing for all customers.

Customers can contact customer service via phone, email, text, social media, or our app and communicate with live representatives. We pride ourselves on our consistent customer service process which includes very short wait times, minimal transfers, and a goal of issue resolution on the first call.

ALLO's scalable Operations Support Systems and Billing Support Systems, along with other technical and analytical tools, work together to provide the efficient operation of the world-class network.

3.3.2 Provide detailed description of future pricing and guarantees (all rates and products) to City customers (e.g., business, residential, and City government).

ALLO provides customers with a fair and honest price for world-class services. Over the last 20 years, the product value and cost structure has increased as with most industries.

We understand that price is an important consideration. It is ALLO's mission to keep costs as low as possible while delivering world class services. Our internet and telephone pricing is fair and consistent as compared to other providers.

For television services, local and national programmers control pricing. ALLO utilizes cooperative purchasing to minimize rate increases. Historically, local networks and

sports programming have the most significant price increases. ALLO's goal is to break even on television services in order to supply a necessary, but expensive service.

ALLO provides industry-leading service and support as is evidenced by our consistently high NPS, discussed in the prior response. Our fiber optic network, crystal clear telephone service, Wi-Fi 6 certified blast router, and free ALLOIQ Wi-Fi app continue to provide our customers with consistently exceptional experience. For example, in 2022 ALLO added ProtectIQ to all internet customer's ALLOIQ apps for free, adding additional security and peace of mind.

ALLO ensures that business, governmental and consumer pricing across Nebraska is competitive.

Products/Services

ALLO's FTTP network will provide key services to Joplin including world-class internet, fiber broadband connectivity, video/television, and voice services. The solutions offer a customer experience superior in capabilities and price.

ALLO specifically provides ubiquitous 1+ Gbps service with symmetrical speeds (delivering the same download and upload speeds) to entities including residences, businesses, and government entities. The standard residential offerings are symmetrical speeds at 500Mbps, 1G, and 2.3G.

We do not utilize data caps. Unfettered access is a key component of ALLO's FTTP networks. The ability to provide broadband and internet without data caps or other limits is essential to quality service.

Our service platform also includes a private (not internet-based) local telephone solution, and a world-class IPTV video solution. We offer several bundling options for combining services, which provides cost savings to customers.

A summary of all services is shown below.

Residential Services:	
Internet	ALLO's standard symmetric internet speed is 500 Mbps. We also offer internet bandwidth options of 1 Gbps, and 2.5 Gbps.
Television	Mediaroom with 200+ channels. Features such as Start-Over TV, Instant Channel Change, Whole Home HD, Whole Home DVR, Video on Demand, Watch TV Everywhere, wireless set-top boxes, and more are available. Channel packages include: • Local (20+ channels) • Basic (100+ channels) • Expanded (200+ channels) • The Works • Premium Channels (HBO/Cinemax, Showtime, Starz, etc.)

	ALLO also offers Sling TV as a wholesale over-the-top offering.
Voice	Network-based solution with full features and unlimited long distance. Features include: Caller ID, call waiting, 3-way calling, voicemail, call forwarding, speed calling, anonymous call rejection, collect/third-party blocking, robocall blocking, hunting, simultaneous ring, last call return, do not disturb, busy call forward, and more.
Business Services:	
Internet	Symmetric speeds of 500 Mbps to 10 Gbps.
Broadband	Symmetric speeds of 10 Mbps to 100 Gbps metroEthernet and MPLS. Connection to Microsoft Azure, AWS, and other content providers (Individual case basis).
Television	Ericsson Mediaroom with 200+ channels. Services include features such as Start-Over TV, Instant Channel Change, Whole Home HD, Video on Demand, Watch TV Everywhere, wireless set-top boxes, and more. Channel packages include: • Economy (20+ channels) • Basic (100+ channels) • Expanded (200+ channels)
Voice Services	POTs, PRI, SIP, and full features
Voice Equipment	HostedPBX with Mitel, Polycomm, and others. ($20-$40/station/month, ICB)

ALLO does not typically require business or residential contracts for services. We provide straightforward and fair pricing and before/after-tax pricing, so customers know the exact cost of ALLO's services.

Additionally, unlike many of our competitors, long-term customers pay the same rates as new customers. We don't use teaser rates that are low in the first year and then escalate in subsequent years.

See ALLO's website for sample residential pricing and packages in other ALLO markets, channel guides, and additional information on our business services, including customer testimonials.

3.3.3 Provide the anticipated timeline of execution and connecting the City of Joplin.

An implementation schedule at this stage is theoretical at best. Many decisions will impact the plan outside of ALLO's control including City funding, grant funding, RFP vendor selection process and timing, contract finalization, permitting, pole approval, easement issues and verification, City right-of-way agreements, building rights of entry, and final project scope, to list a few underpinnings.

Tasks within ALLO's direct control including safety, design, construction, material acquisition, splicing, restoration, and other processes will be developed within our Project Management Office.

ALLO has a defined implementation process that has been refined through more than 20 years of experience providing services in markets both larger and smaller than Joplin. Our current networks have a total population of approximately 1 million.

For a market of Joplin's size, the network is expected to be constructed over a period of 24 months and will pass substantially all homes and businesses within Joplin city limits. Design, authorities, and material purchases will occur in the first 4 months before beginning construction. The first service areas will be active approximately 6 months after the onset of construction.

ALLO's defined and predictable process relies on collaboration and cooperation with the City and electric utility for effective construction processes for the launch of the service areas. Joplin will control the speed of the project.

From a planning viewpoint, the design and construction stages are the most complicated part of the deployment. Construction communication will begin approximately 60 days before a serving area has started construction. Direct mail, door hangers, websites, yard signs, and other communication will inform the public about construction in the area.

While ALLO will start and finish in certain areas, the order is not defined by take rate or opportunity, but rather by construction efficiency. It is vitally important that the construction process occurs in a safe, but expeditious, manner. Planning to pass all entities as quickly as possible has a direct impact on the ultimate adoption by the community.

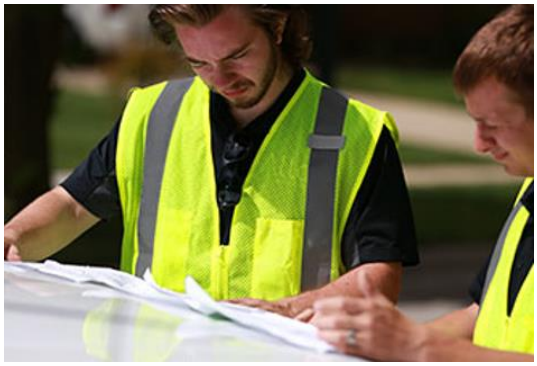
In ALLO's previous communities, ease of design and construction dictate which areas are constructed first, with more complicated areas completed later. The latter often take much longer to design and evaluate cost-efficient construction solutions.

A mix of aerial and underground will reduce the cost of construction of the City. With an all-underground construction, the City (or other government grants) may have to subsidize the cost of the project.

Timeline

Following is a sample project timeline with key milestones. Dates are subject to change based on contract award and other issues listed above.

Event	Date
Logistical Pre-Planning	Upon Award/ Q2 2023
State and Local Agreements Executed	TBD
Preliminary Design	Q3 2023
Permitting Approved	Q1 2024
Communication of Construction	Q1 2024
Materials On-Site	Q1 2024
Construction Starts	Q1 2024
Pre-Sale Marketing Ramp-Up	Q2 2024
Customer Operations Ready for Launch	Q2 2024
Fiber Huts Commissioned	Q3 2024
Retail Sales Begin	Q2 2024
Initial Customer Drops Complete	Q3 2024
Network Testing	Q3 2024
Go Live to First Customers	Q3 2024
Fully Constructed	Q1 2026
Project Close Out	Q1 2026



Design/Construction - ALLO will design our network using our playbook, auto-design programs, and available GIS information for the community and existing utilities to provide an optimized plan for the City including aerial, trench, bore, and other construction methods. A combination of construction methods and available routes will be considered in developing an optimum design.

ALLO utilizes a wide variety of construction techniques that have proven successful in other communities. Typically, ALLO will use directional boring, trenching, plowing, or aerial placement construction methods to serve existing neighborhoods to match and maintain the current character of the neighborhood.

We attempt to utilize existing infrastructure as much as possible in our design process, both for established homes and neighborhoods and neighborhoods that are in the process of being built.

ALLO partners with the local power company, local municipalities, and other utility providers whenever possible to utilize joint trenching and placement in new neighborhoods being developed to minimize ROW and utility easement impact.

The primary strategy is to work with local municipal experts to determine the safest, lowest impact locations for conduit in the ROW's. Utilizing proper planning and

experienced boring contractors, combined with proper ALLO design and oversite, provides the best solution for all.

Installation/Customer Connections – ALLO will be responsible for the installation of equipment and services to the customer premises. ALLO prefers to utilize company employees when entering a home or business. The installation crews will include technicians that will transfer from ALLO's other markets. ALLO's proven processes and procedures ensure a quality experience for the customers.

Connections from the easement to the home or building will be powered using a common GPON solution. A homogenous network ensures a cost-efficient design with network dependability and security. ALLO utilizes a Calix GPON solution from the central office to the Wi-Fi6 router.

Connectivity for large businesses and large governmental entities will be provided with individualized solutions (such as Calix, Adtran, and Cisco), including active Ethernet connections and fully redundant paths and entrances, when required. The standard network design will accommodate both GPON and active solutions.

An important component of speed is Wi-Fi. In October 2020, ALLO began installing new communities with Wi-Fi6 routers, being one of the first carriers in the country to move to the new technology. We spent the previous year working with vendors to operationalize the solution.

With 3 Gbps symmetric capabilities and substantially improved propagation, the new devices are performing at a world-class level. All of ALLO's residential service offerings include hosted Wi-Fi within the basic local service rate, creating industry-leading customer experiences.

3.3.4 Does the Respondent anticipate opening a local business office or does the Respondent have a local business office in place? If Respondent plans to open local business office, please provide its approach.

Yes, ALLO will open a local business office in Joplin. Please refer to the response to 3.1.3.4 for information.

Section 4 – Technical Approach

4. Technical Requirements

The Respondent must meet the following technical parameters. Any details of the engineering design beyond these parameters are at the discretion of the Respondent. Respondent should note in the RFP response if it intends to deviate from any of the following requirements. If Respondent deviates from the requirements, the Respondent shall include a description for the alternate approach and explain briefly why the alternative approach will be adequate.

4.1 A fiber network should be designed to pass every home, business, underserved areas, and governmental location within Joplin's City Limits.

The fiber network will pass substantially all homes and businesses within Joplin city limits. Occasionally we will come across a home/area that is extremely expensive to serve (large acreage, etc.) which makes it cost-prohibitive to provide coverage. ALLO will agree to standard franchise wording for coverage and will evaluate other solutions to

provide coverage while not committing to supply service to locations that are not economical.

Joplin is substantially more expensive to pass compared to other communities that ALLO serves. Adding unique costs or requirements could adversely impact the viability of the project.

4.2 The network should be capable of delivering gigabit download speeds and denote upload speeds capable of meeting federal guideline minimums. Respondent must document how technology will be scalable to meet future bandwidth needs to every subscribed customer in Joplin's City Limits.

ALLO provides ubiquitous 1+ Gbps service with symmetrical speeds (delivering the same download and upload speeds) to all entities including residences, businesses, government offices, and government entities.

ALLO fiber networks are designed to be a perpetual business with appropriate upgrades for the future. Existing networks have been operational for almost 20 years and are expected to be utilized for 30+ additional years.

The network model is GPON-based with active availability. ALLO's XGS GPON network is designed to be upgradeable for faster broadband speeds as demanded by the community and technological advances.

ALLO chooses equipment with the ability to handle the newest devices and increased speeds. Our solutions include the Gigacenter Wi-Fi router. The Gigacenter provides for a home or SMB-based network interface device for a consistent wireless experience and is included in our installations.

The newest powerhouse router provides wireless connections, increased network capacity, and is Wi-Fi 6 certified. The Blast gives homes and small businesses an upgraded signal, stronger connections on all devices, and increased speeds for faster online activity.

The network is designed to provide 10 Gbps symmetrical service to all households with currently offered speeds up to 2.3 Gbps. Products include symmetrical download/upload internet speeds of 500 Mbps, 1 Gbps, and 2.3 Gbps.

ALLO offers and supports broadband services to commercial entities up to 100 Gbps. The network is scalable for enterprise users. While standard speeds of 100Gbps are offered to businesses, higher speeds are available to meet specific needs. Low latency and jitter are important, possibly more so than stated speeds. Additionally, local caching and direct connections to high-volume internet sites improve the internet experience.

ALLO's all-fiber network capable of GPON, NGPON2, and active internet solutions will create a 30+ year solution. Content caching, redundancy, and evolving communications and entertainment solutions will create a competitive advantage for the Joplin area.

4.2.1 The design will incorporate a drop network access point (NAP) design that will enable the easy placement of a fiber drop to premises that take service.

ALLO uses Multi Service Terminals (MSTs) to provide a light tested Optitap port to serve each home and business as part of our network design and construction.

4.2.2 The network should be designed so that it will continue to provide the promised broadband speeds at the expected busy hour when the network carries the most local broadband traffic.

ALLO provides the full symmetrical upload and download speeds to every customer (500 Mbps, 1 Gbps, 2.3 Gbps) regardless of network demand over an individual fiber to the home or business. We do not oversubscribe links or share services between customers. Because of this, our network latency remains very low regardless of customer demands or peak usage times.

4.2.3 The design should include all huts, cabinets, and other network elements needed to make the fiber network functional and ready to accept electronics.

ALLO's design will include a central office design where all active equipment will be located. It will have a generator for backup power. The ALLO network design from the central office out to the individual homes and businesses is passive.

4.3 The City's preference is to use buried fiber. Describe the number of miles of proposed aerial and buried fiber in the Respondent plan.

The total of proposed buried fiber is 651 miles (100% underground). Due to being unable to obtain electrical GIS data from the local utility, a preliminary network design incorporating aerial footage was not possible.

See **Appendix B** for a network design.

4.4 For buried infrastructure, locating wire must be installed with all buried fiber. All conduits shall be placed at a minimum depth of 36".

ALLO uses armored fiber cables to aid in locating the buried fiber network. All cables are enclosed in conduits that are placed at a minimum of 36" of depth usually by directional boring methods. Vacant conduits contain locatable mule tape.

4.5 For aerial fiber, Respondent will execute a pole attachment agreement with the owner of any utility or light poles to be used for aerial construction and will adhere to the requirements of such agreements for purposes of performing make-ready work or in placing fiber on aerial poles.

ALLO will work with Liberty Power to obtain the needed pole attachment agreement and obtain the needed pole attachment permits for all aerial construction. All aerial fiber will be placed by following the NESC and NEC requirements to insure a safe aerial network.

4.6 Respondent shall obtain all needed permits, right-of-way, and easements from the appropriate government entity for public rights-of-way and from private landowners for private rights-of-way. These shall include, but are not limited to, all authorities having jurisdiction (local, state, and federal), railroad crossings, water crossings, wetland crossings, and road crossings.

ALLO will obtain all needed permits for underground construction. We routinely work with all the listed entities as well as the department of roads for permitting and easements. ALLO also most likely would obtain a Video Franchise to provide linear tv services.

4.6.1 Respondent should provide independent inspection of the construction process (meaning the inspectors are independent from, and not employed by the Respondent) so that the constructed network meets the design specification of the network.

This would not be ALLO's normal approach. ALLO believes oversight by ALLO field engineers and quality control teams overseeing contract construction forces in the field produces better results. However, ALLO would be open to bringing on independent inspectors who would meet the City's requirements for the term of this project to meet this contract requirement.

4.6.2 Describe proposed process for construction inspection and describe the functional independence of the inspectors.

ALLO typically uses directional bore contractors to place underground facilities and also for some aerial placement. ALLO field engineers and QC staff verify the contractor's work, restoration, and to verify billing qualities. The independent inspectors have free access to observe, inspect, and report on any construction deficiencies observed.

4.7 Post construction, Respondent shall provide a copy of the final construction/as-built drawings to the City in shapefile format to the City.

ALLO will provide Shapefiles of the final construction/as-built to the City. ALLO uses GIS in both the design and QC processes and uses 3GIS to document the fiber construction, structure locations, and running lines.

4.8 Respondent shall adhere to all national standards related to fiber construction and fiber electronics (Appendix A).

ALLO's design, materials, electronics, and construction practices are compliant with all standards listed in Appendix A in the original RFP.

Section 5 – Financial Approach

Please see the separate confidential document which contains the Financial Requirements section.

Section 6 – Additional Information

Please see the following appendices:

Appendix A: ALLO Organizational Chart

Appendix B: ALLO Network Design

Appendix C: ALLO Financial Statements (provided in separate Appendix C Confidential Financial Information document)

Appendix D: Signed Addendums 1 & 2

Appendix A – ALLO Organizational Chart

ALLO Fiber Organizational Chart

Brad Moline
President & CEO

Sales Team

Kathy Carstenson
Director of Business Sales

Mark Caniglia
Director of Residential Sales

Allison O'Neil
Chief Experience Officer

Residential & Business Customer Experience

NTAC

Nick Colton
Director of Technical Support

Clint Schleicher
Director of Video Operations

Don Schoening
Chief Field Services Officer

Field Services

Safety and Fleet

Residential Installation

Business Installation

MDU

Inventory

Joshlyn Mangan
Director of Human Resources

Recruiting

HR Operations

Benefits

Tanna Hanna
Director of Marketing

Marketing & Advertising

Inside Sales

Digital Experience

Events & PR

First Impression Specialists

Tyler Pearson
Director of Product Development

New Products

Network Engineering

Todd Heyne
Chief Construction Officer

Design

Plant Operations

Learning & Development

Al Schroeder
Director of OSP Engineering

Nate Buhrman
Chief Financial Officer

Finance

Accounting

Data Analytics

Software Engineering

Project Management

Mike Borst
Director Finance

Avid Team

Dave Scott
Avid Director

T.J. Sauder
Avid Director

David Hollingsworth
Avid Director

Regional Support

Bob Beiersdorf
Regional General Manager – CO

Mike Horton
Regional General Manager – AZ

Dave Miller
Regional General Manager – Eastern Nebraska

Clint Schleicher
Regional General Manager – Western Nebraska

Additional Directors

Doc Wininger
Director of External Relations

Shawn Traudt
Director of Public and Private Partnerships

Appendix B – ALLO Network Design

Joplin MO
01/20/2023

Service Locations
UG Route
City Boundary
GoogleEarth

N

0 2.5 5 mi

Appendix D – Signed Addendums

CITY OF JOPLIN
RFP Solicitation for Citywide Fiber Optic Network Partnership

Addendum No. 1

Replace page 5 in its entirety and replace with the attached page 5.

The sentence: *"The City is seeking innovative partners to deploy a citywide open-access fiber network. and requires Respondents to provide the following information:"*

Is replaced with: *"The City is seeking innovative partners to deploy a citywide fiber network and requires Respondents to provide the following information:"*

The undersigned hereby acknowledges receipt of this addendum, which by this reference is hereby incorporated in and becomes a part of the Contract Documents for the above referenced project.

ALLO Communications LLC
Company Name

Signature

Brad Moline, President
Printed Name, Title

CITY OF JOPLIN
RFP Solicitation for Citywide Fiber Optic Network Partnership

Addendum No. 2

Addendum 2: Responses to Questions

The undersigned hereby acknowledges receipt of this addendum, which by this reference is hereby incorporated in and becomes a part of the Contract Documents for the above referenced project.

ALLO Communictions LLC
Company Name

Signature

Brad Moline, President
Printed Name, Title

- Written RFP Response Scores

	Ritter Communications	Socket Telecom	Lit Communities	Allo	Gateway Fiber	Underline	MOBIA	Matrix SpeQ	Cable Runner
Scorer #1	46	42	36	43	37	33	22	21	0
Scorer #2	44	41	41	41	38	35	27	29	0
Scorer #3	47	44	43	49	45	36	35	0	0
Scorer #4	37	46	50	33	36	47	37	0	0
Scorer #5	43	42	42	44	40	42	38	25	0
Average Score	**43.4**	**43**	**42.4**	**42**	**39.2**	**38.6**	**31.8**	**15**	**0**

Interview Scores

	LIT	UNDERLINE	SOCKET	GATEWAY	ALLO
Scorer #1	9	12	25	23	24
Scorer #2	16	18	23	25	27
Scorer #3	23	23	24	26	26
Totals	48	53	72	74	77

City Review Team Impressions

Overall Impressions

What did you like?
Positive References
Low Cost to Customers
Business Maturity
Mapping & Locate Crews
Resilient & Redundant Network

What did you dislike?
Non Responsive references
New companies without customer service history
Extended build timelines
Proposed city investment exceeded expectations

Allo FIBER

Underline

gatewayfiber

Ritter COMMUNICATIONS

MOBIA

Lit Communities

MatriX SpeQ

Socket VOICE • DATA • INTERNET