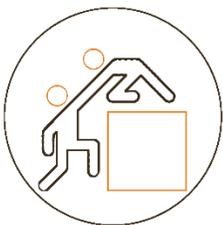




Executive Summary

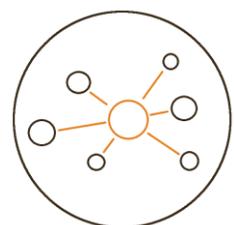
Infrastructure Working Groups White Paper Overviews



Support



Promote



Facilitate

Connected and Autonomous Vehicles

Overview

We are in a period of transition, as autonomous and connected vehicles begin coming to market. On the SAE International's automation level scale of 0 (no vehicle automation) to 5 (fully autonomous vehicle)¹, Level 4 / 5 automation is coming in the near future, but full market penetration for a wide group of consumers might still be 20 or more years out. Many believe that the technology costs will drop over the next decade, and adoption rates will accelerate quickly^{2 3 4}. Many of the potential societal benefits of Connected and Autonomous Vehicles (CAV) will not come to full fruition until these technologies achieve a significant market penetration. To help position the Omaha / Council Bluffs region as a leader in CAV technologies, the working group has identified these five initiative areas:

- **Safety:** The potential traffic safety benefits of CAV are high for motorists, pedestrians, and bicyclists. The National Highway Traffic Safety Administration claims up to 94 percent of crashes are attributable to the type of human error that technology can reduce through automation. Early CAV technology exists now on many new automobiles to improve safety and reduce crashes. There are opportunities to identify partners for implementing safety warning systems on vehicles, and implementing other passive technologies to benefit all modal users.
- **Infrastructure:** CAV technologies will require infrastructure investments in addition to traditional roadway related infrastructure. Agencies in the region need to incorporate the required technology and communications to take advantage of the opportunities that CAV offer.
- **Urban Planning:** Start planning now for how we can make the technology fit our neighborhoods and places - make policies for CAVs that fit within urban context and our desires for neighborhoods. An approach advocated by the National Association of City Transportation Officials (NACTO), referred to as "Autonomous Urbanism", provides guiding principles including: safety as priority, wider mobility, rebalancing street rights-of-way, and increasing vehicle occupancy rates.
- **Broader Accessibility:** Accessibility is transportation connecting people with goods, services, activities, and opportunities. Access can be measured in terms of jobs, shopping options, and medical / social services. For an inclusive community, that access needs to focus on all modes of travel; particularly on non-automobile connections for transit-dependent populations. There are currently demonstration projects of connected and autonomous transit vehicles being deployed across the US. In the Omaha-Council Bluffs area, these autonomous transit deployments should focus on supporting neighborhood-scale circulation, and improving access to existing and planned high-frequency Metro transit routes.

¹ http://www.sae.org/misc/pdfs/automated_driving.pdf

² <https://www.vtpi.org/avip.pdf>

³ https://www.caee.utexas.edu/prof/kockelman/public_html/TRB16CAVTechAdoption.pdf

⁴ <http://docs.trb.org/prp/16-2284.pdf>

- **Integrate Smart City Concepts:** Smart Cities are those that integrate technologies, communications, and data to improve the quality of services and the public quality of life. Smart Cities often integrate infrastructure with social services and systems via communications technology and a range of data and applications.

Conclusion

Overview

The region should approach adoption of connected and autonomous vehicle technology with the understanding that CAVs and smart city concepts to have the potential to improve safety for all system users, and increase access to jobs and services for all citizens of the region. These technologies have the ability to:

- Significantly reduce the number of vehicular crashes and bicycle and pedestrian crashes compared to today, by removing the human element from decision making and inserting warning and avoidance technologies in vehicles. Safety is also improved by creating urban, activity-focused corridors where vehicular speeds are lowered to improve pedestrian and bicyclist safety.
- Decrease the cost of transportation, through enhanced rideshare / mobility-as-a-service opportunities and decreased operating costs due to electrification. These reduced costs can also be expected for commercial vehicle and public transit fleets.
- Increased access equity, providing broad, effective, and cost-efficient transportation options through new ownership structures and improved access to \ existing and planned high-quality, high-frequency transit lines, supplemented with CAV transit and safer pedestrian environments.

Action / Next Steps

The next step for the region is to work towards formalizing a CAV vision and framework. It is critical to identify partners as we take our next steps. This includes several opportunities:

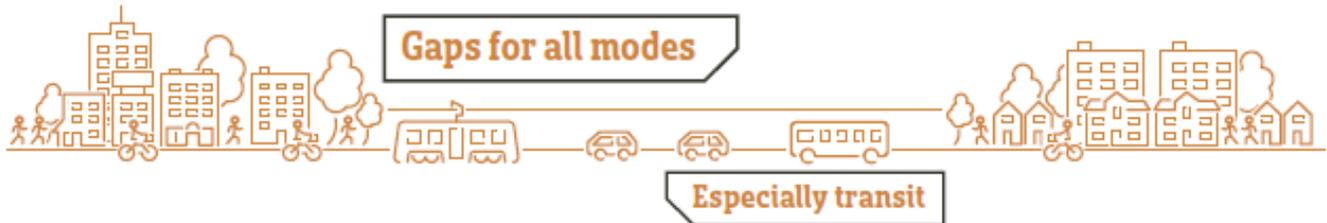
- A near-term goal should be to establish a Transportation Technology Action Plan that fits within regional goals and achievable steps.
- Developing this Action Plan as an implementable and effective framework requires an integrated approach. The current Heartland 2050 working group could be expanded to represent more agencies and departments. Thus, we propose continuing and expanding the Omaha-Council Bluffs CAV Working Group. The committee could continue being a clearinghouse for market trends and disseminating information. The committee could continue focusing on sub disciplines such as:
 1. Safety Technology Deployment & Testing
 2. Planning Issues / Place Making Implications of Technology
 3. Private Industry Coordination
- Identifying local foundations and private funding to advance the safety and infrastructure elements of the CAV initiative.
- Promoting the safety initiative to the public, and communicating the benefits the technology offers.

- As a part of the Heartland 2050 structure, identifying partner agencies that can benefit from technology and improved access. This would build on the Heartland 2050 Summit smart city goals of addressing societal issues through transportation technology.
- Engaging with national experts for implementation advice.
- Work to gain additional public agency engagement and commitments. This includes expanded engagement with regional agencies, integrated with MAPA's ongoing efforts, and collaboration with the Nebraska and Iowa Departments of Transportation.
- Implementation will require identifying the funding and policy elements, including:
 - Demonstrating the commitment to private partners to support regional goals
 - Identifying public funding opportunities at the city, county, state, and Federal level.
 - Identify supportive policies and the local and state level to ensure the safety, infrastructure, urban planning, and societal benefits are achievable.
 - Identifying early adoption opportunities, including opportunities for CAV fleet purchases for local agencies, and identifying private sector / after-market installation partners for passive warning systems for safety benefits.
 - Coordinate investment decisions at the regional level to achieve the action plan.

CLOSE THE **gap**

A clear plan for a more walkable, livable region.

INFRASTRUCTURE FUNDING



4 BILLION

EXPECTED SHORTFALL BY 2040

WITHOUT A **PLAN** TO SECURE
MORE LOCAL FUNDING,
OUR INFRASTRUCTURE WILL
CONTINUE TO DECLINE

INVESTING IN INFRASTRUCTURE BRINGS MANY BENEFITS TO OUR REGION



WORKFORCE
RETENTION



IMPROVED
QUALITY OF LIFE



ECONOMIC
DEVELOPMENT



ACCESS TO
OPPORTUNITY

Next Steps

1. Prioritize maintenance of existing infrastructure
2. Reach consensus on regional needs
3. Coordinate efforts to secure local funds

POTENTIAL SOURCES



FEDERAL

- Increase in Federal Gas Tax
- Conversion of Federal Gas Tax to Vehicle Miles Travelled (VMT) Tax



STATE

- Repeal of Sales Tax Exemptions
- Increase in State Gas Tax
- Conversion of State Gas Tax to VMT Tax
- Modify Linkage of Gas Tax to Wholesale Price
- Modify Gas Tax Allocation Formulas
- Transfer Local Streets to State Highway System
- General Fund Reallocations



LOCAL

- Increased Bonding
- Bonding for Bike/Pedestrian and Streetscapes
- Sales Tax Increase
- Increase Wheel Tax
- Expand Wheel Tax to Extraterritorial Jurisdiction
- General Fund Reallocations
- Development Fees
- Increase in Parking Revenue
- Shift Gas Tax Revenue Currently Used to Pay OPPD Street Light Charges
- Expanded Redevelopment Incentives, i.e. Transportation Districts
- Public-Private Partnerships, i.e. Sale of Public Assets
- Philanthropy



REGIONAL

- Create Regional Transportation Authority with Taxing Power

Long Range Utility Plan (LRUP)

Infrastructure planning across political boundaries, based on land topography and natural areas, and managed growth so that new development is contiguous and directed to areas where adequate public infrastructure and services exist already or are planned.

Overview

The LRUP group has put together a strategy to work with all utility jurisdictions across the Heartland 2050 area. The utility infrastructure areas that will be involved include electricity, gas, water and sewer. Even though 2017 activities have been slow to develop there have been several initiatives within city and counties that have had substantial activities that concentrated on long range sewer, electric, water and gas planning.

In order to expand the planning efforts across all of the Heartland 2050 area, the LRUP group put together the following activities below that will be worked on going into the future.

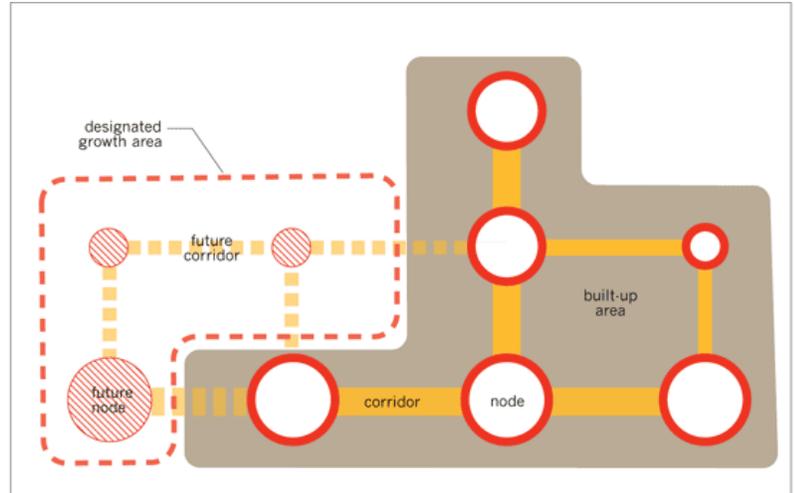
- Collect City and County Comprehensive/Master Plans for Heartland 2050 geographic area
 - Incorporate Natural Resource District's future lake developments
 - Incorporate Nebraska Department of Transportation future road plans
 - Review South Sarpy sewer plan recommendations
- Utilities (Electric, Gas, Water and Sewer) work to gather information to identify areas in their jurisdictions for:
 - Current excess capacity
 - Expansion within current system
 - Constraints within the utility system
 - Long range development plans (10+ years)
- Participate with large mega-site economic development initiatives for planning and coordinating utility infrastructure.
- Create a heat map showing the best areas for infrastructure growth across Heartland 2050 geographic area.
- Make recommendations to City or County entities, if identified infrastructure growth areas don't match their current comprehensive/master plans

With the roadmap in place there will be a focus in 2018 to gather and document the information above in order to produce the heat map.

Nodes & Corridors

Nodes and Corridors Framework

1. N&C Goal Statement - Need to Create based upon the Priorities Below
2. What are Nodes and Corridors - N&C
3. Growth Trends (Local)
4. Changing Market (Local & National)
5. Omaha Metropolitan Area Development Patterns
6. Guiding Principals
7. Desired Outcomes
8. Composite Map of H2050 N&C
9. Nodes - Existing and Future
10. Corridors - Existing and Future
11. Implementation



Action Plan for 2018

1. Revise framework with input from the executive committee
2. Identify dedicated staff time from MAPA / partners to develop “base” information
3. Decide if the effort requires a dedicated consultant team to complete the project

1. Nodes & Corridors Goal Statement

The Heartland 2050 Vision focuses on six goals in the areas of Economic Development, Education, Health and Safety, Housing and Development, Infrastructure and Resources, to improve the quality of life in the eight-county region and create a long-term, regional vision in harmony with our people, places and resources.

The question of how and where we grow is a driving force behind the Heartland 2050 Vision. As part of the Heartland 2050 effort, the Nodes & Corridors Committee will identify nodes (current and future mixed-use, high density areas) throughout the region, and the corridors (multi-modal connections) between these areas, in order to focus and coordinate the transportation, housing and economic development investments of regional partners. These investments are intended to increase mobility and access to jobs and strengthen the investments of individual partners through coordination and collaboration. Partners will be able to make effective and strategic decisions about investments with an understanding of broad, regional goals and inter-agency commitments.

2. What are Nodes and Corridors

Nodes

Nodes are defined areas of development that have a variety of land uses, with concentrations of density, and a concrete sense of place that people can identify.

Corridors

Corridors are major connections between nodes facilitating multiple modes of transportation, often with more intensive transit investment along them.

3. Growth Trends (Local)

Local Growth Trends

While slow to adopt national trends, the Omaha-Council Bluffs area is starting to see many of the trends and demographic shifts noted above. This can be seen through new trends in suburban growth, and public and philanthropic interest in urban redevelopment and redevelopment patterns.

Younger generations in the Omaha area are not following national trends as closely as many areas but there are definite shifts in what people under 40 are expecting from housing and what they want access to. Websites like walk score which caters to people looking for housing close to amenities rates Omaha's top neighborhoods as:

Rank	Name	Walk Score	Transit Score	Bike Score	Population
1	Market West	88	-	62	1,690
2	Old Market	87	-	73	855
3	Park East	85	-	57	2,163
4	Dodge Street Corridor	84	-	45	575
5	Downtown	83	-	58	1,413

Walk Score notes that while Omaha is still a car centric city there are options for transit, and that many of the houses in transit friendly areas feature perks like hardwood floors and built in cabinets. Retiring baby boomers are switching how they live and are seeking out more walkable entertainment oriented areas, like Old Market, where housing values are out of reach for younger people looking for an apartment or first home. These areas provide people of all ages with a more active healthy lifestyle and options beyond driving.

The trend for more walkable inclusive communities can also be seen in the outer suburban developments that are being proposed like Legacy, Avenue One and 84th St La Vista. There has also been considerable grassroots and developer interest in areas like Blackstone, Benson, Midtown Crossings, and Aksarben Village creating both inner suburban renewal, and outer suburban densification. Downtown areas in smaller cities, Gretna and Springfield, are attracting young families who are looking for a community feel with amenities without the hassle of living within a larger city. The MTIS preferences survey done in 2013 shows a trend to prefer multifamily housing units both in suburban and urban areas in the metro area.

4. Changing Market (Local and National)

National Growth Trends

Nationally, the market continues to change in favor of mixed-use, higher density and transit-oriented development, commonly located closer to urban centers of American cities. As the number of Americans entering the workforce from the "millennial" generation continue to

grow, and as the “baby boomer” generation age in place, the importance of fostering these new nodes and corridors is of utmost significance. Changes within the Omaha-Council Bluffs Metropolitan Area have created new opportunities for business and commerce, and has begun a shift in the patterns and trends of development within the communities that comprise the metro area. Although these shifts may not fully be transit-oriented or mixed-use in their initial conception, the ability to adapt and grow these areas as trends change nationally and locally are very feasible.

Regional Growth Trends

Within the upper-mid-west and heartland region, various initiatives have been made in similarly-sized cities which can be of use as Omaha/Council Bluffs derives its new vision for nodes and corridors within the metropolitan area and surrounding area. These cities, ranging in sizes larger to smaller than Omaha/Council Bluffs, including similarly-sized cities, have all developed plans and initiatives for corridors and nodes within their jurisdictions or metropolitan areas to stimulate sustainable growth and foster new economic opportunities.

5. Omaha Metropolitan Area Development Patterns

- a. Outcomes
- b. Societal Costs
- c. Financial Costs
- d. Future Result

6. Guiding Principles

7. Desired Outcomes

8. Composite Map of H2050 N&C

9. Nodes – Existing and Future

- a. Old market
- b. North Downtown
- c. 24th and Vinton
- d. Dundee
- e. Blackstone
- f. Benson
- g. UNMC
- h. Midtown
- i. Legacy
- j. Downtown La Vista
- k. Avenue One
- l. Rivers Edge
- m. Aksarben
- n. 24th and Lake
- o. 75 North/Fair Deal Village

10. Corridors Existing and Future

- Dodge Street Corridor
 - Upcoming BRT line
 - Major thoroughfare
 - Redevelopment along portions
- Center Street Corridor
 - Road diets
 - Bike infrastructure

- Infill development around Aksarben village
- Potential future BRT route
- 370 Corridor
 - Major development in Sarpy County
 - Infill development potential
- 24th Street Corridor
 - Major N-S corridor connecting North Omaha and South Omaha as well as Bellevue
 - Bike infrastructure coming
 - Potential future BRT route
 - 24th and Lake developments
 - MCC South Campus
- 13th Street Corridor
 - Connections to North Downtown, Old Market, Bellevue
 - Road diet
 - Bike infrastructure
- 30th Street Corridor
 - Connections between Florence, North Omaha, Midtown
 - North Omaha Transit Center, 75 North, Fair Deal Village, Midtown Crossing
 - MCC North Campus
 - Potential future BRT route
- 72nd Street Corridor
 - Potential for redevelopment and infill
 - Major East-West divider for the city of Omaha
- 84th Street Corridor
 - Connector between Omaha, Ralston, La Vista, and Papillion
 - Downtown districts for Ralston La Vista and Papillion
- 144th Street Corridor
 - Suburban infill potential
 - Provides North-South connections between Omaha and Western Sarpy County
- 168th Street Corridor
 - Suburban infill potential
 - Provides North-South connections between Omaha and Western Sarpy County

II. Implementation:

a. Partnerships

As the Heartland 2050 Vision states, we must work together to grow responsibly. A diverse, inclusive group of partners is necessary for successfully creating and implementing regional plans for growth that address the entire spectrum of community needs. Partners needed for the implementation of Nodes & Corridors recommendations include, but are not limited to, the following:

- Heartland 2050 Executive and Implementation Committees and associated members
- Metropolitan Area Planning Agency
- Elected Officials (City, County, etc.)
- Chambers of Commerce and Economic Development entities
- Community development organizations
- State Departments of Transportation
- For-Profit Developers (large and small)

- Non-Profit Developers
 - Local business associations
 - Infrastructure partners (utility companies, SID leadership, etc.)
 - National Resource Districts
 - Funding Sources (banks, foundations, government entities, etc.)
 - Community and Neighborhood Groups
 - School districts
 - Youth Leadership organizations
 - Social justice organizations (for equity and inclusion)
 - Housing-related agencies
 - Transportation-related agencies
 - Health-related agencies
 - Consultants (for special needs)
- b. **Funding**
- c. **Studies**
- d. **Case Studies**
- e. **Existing Examples - Blackstone / Rivers Edge**
- i. **Success Stories**
 - ii. **Hurdles**
- f. **Great Places Tool Kit**
- i. **Parking Tools**
- g. **Great Places Evaluation Matrix**
Older, Smaller Better

<https://savingplaces.org/stories/preservation-tips-tools-older-smaller-better-new-findings-preservation-green-lab#.WV6Gw4jyvcs>

Atlas for ReUrbanism (they will be coming to Omaha to add us to the list of cities with character scores)

http://forum.savingplaces.org/act/pgl/atlas?_ga=2.208213650.1271994232.1499367108-349786686.1481203137

- h. **Barriers**

Multi-Modal

Objectives / Goal

- Regional Complete Streets Policy
- Model policies for local jurisdictions to adopt

Action Items

- **Defining Complete Streets:** What are our goals and how does a complete streets approach support achieving them?
- **Guidance for Local Policies:** Model Complete Streets language for local adoption, and information about regionally significant opportunities for complete streets projects (like those in the Bike-Ped Plan and Transit Vision)
- **Implementation:** How can regional funding support complete streets, and how do we prioritize projects as part of the MPO process?

Defining Complete Streets

What:

To create great places and enhance our quality of life, communities will provide safe, accessible streets for all users.

Why:

Complete Streets will enhance the region's quality of life over the long-term with a well-balanced and connected transportation system that provides for economically sound and connected development patterns, public health and safety, livability, equity, affordability, economic activity, and excellence in design and community character.

Guidance for Local Policies

Document Review:

[Complete Streets Omaha](#)

[Utah's Unified Transportation Plan](#)

[Minneapolis/St. Paul Transportation Policy Plan](#)

[Mid-Ohio Regional Planning Commission Complete Streets Model Policies](#)

[Des Moines Area MPO Complete Streets](#)

- [Infrastructure guide](#) based on [Study by the department of health](#)

[Bellevue](#)

Each of these plans generally identified common priorities or goals. The order varies depending on the region but frequently included:

- Safety
- Economic Vitality
- State of good repair/preservation of infrastructure
- Air Quality
- Mobility and Accessibility
- Personal or Public Health

Additionally, Omaha's included:

- Economic sound and connected development patterns
- Livability

The need for these to be measurable should be a priority of the final list of goals or priorities.

Overall Comments:

- A lot of similarities, often saying the same thing in different ways based on regional priorities
- Uses the best and latest design standards

Implementation

Des Moines is a good example, has a check list for both adopting and implementing a complete streets policy

Funding:

- Funding is based more on drafting and marketing to the communities
- Implementation of complete street projects comes with reconstruction or new construction and is part of the project cost.

Action Plan for 2018

Recommendations Moving Forward:

1. MAPA to finalize “Why” language based on the research (see similarities above)
 - a. Resources and data to support the priorities or goals should be included with this item
2. MAPA to develop a “Resource Library” that includes a local complete streets sample policy and adoption process
3. Sub-committee to review and give feedback on drafted materials