green town

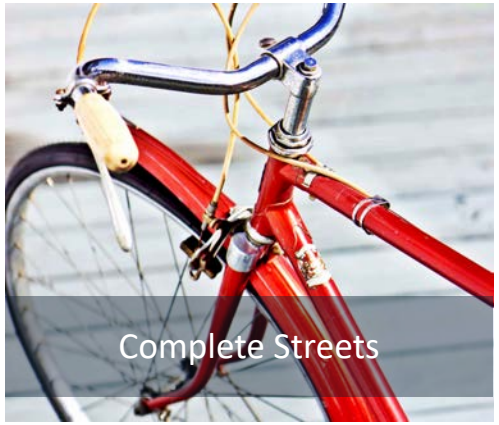
GreenTown Rockford

November 12 | Embassy Suites Rockford Riverfront

The Future Of Mobility

GREENTOWN ROCKFORD | NOVEMBER 12, 2021


Alternative Fuel


Complete Streets


Connected & Autonomous Vehicles


Freight


Public Transportation


Resiliency


LimeBike
Shared Mobility

ALTERNATIVE FUEL VEHICLES (AFV)

ALTERNATIVE FUEL VEHICLES

A dedicated, flexible fuel, or dual-fuel vehicle designed to operate at least one (1) alternative fuel, including, but not limited to:

- Biodiesel,
- Electricity,
- Ethanol,
- Hydrogen,
- Natural gas, or
- Propane.

Source: US Dept. of Energy

Transportation sector accounts for 28% of Greenhouse Gas emissions in the US.

Nationally:

- Light-Duty AFV Models Available: **220** (Jan. 2020)
- Annual Hybrid-Electric Vehicle Sales: **400,746** (Jan. 2020)
- Annual Plug-in Electric Vehicle Sales: **326,644** (Jan. 2020)
- Public Alternative Fuel Stations: **58,448** (Nov. 2021)

Locally:

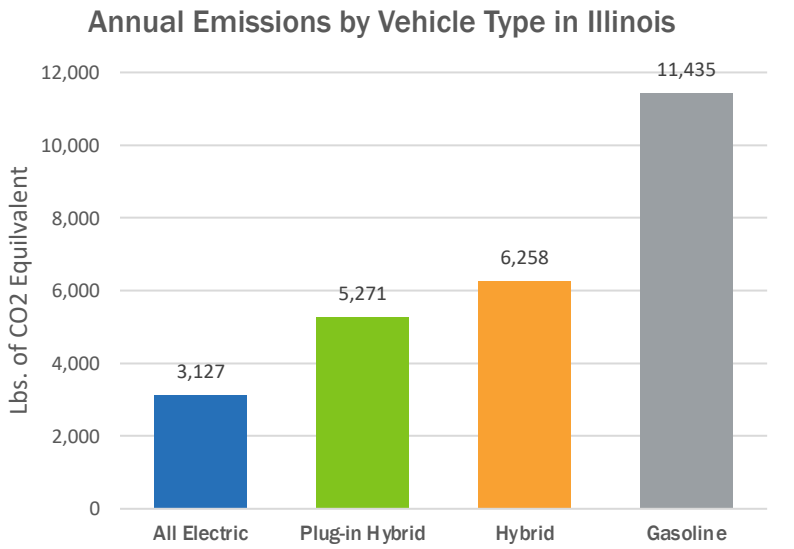
- Electric Vehicle Registrations: **438** (Oct. 2021)
- Hybrid Electric Vehicle Registrations: **37,870** (Oct. 2021)
- Flex Fuel Vehicle Registrations: **5,364** (Oct. 2021)
- Public Alternative Fuel Stations: **25** (9 electric stations)
- Illinois Laws & Incentives: **15**

Sources: US Department of Energy, Illinois Secretary of State

ALTERNATIVE FUEL VEHICLES

Benefits

- Environmental: EVs produce less direct and lifecycle emissions
  - Direct emissions = tailpipe emissions
  - Life cycle emissions, or well-to-wheel emissions, include all emissions related to fuel production, processing, distribution, and use
- Economic: Lower lifetime costs of owning and maintaining EV
  - ¼ - ⅓ less to fuel EV
  - Reduced routine maintenance (e.g. no fluid changes)



Source: US Dept. of Energy

ALTERNATIVE FUEL VEHICLES

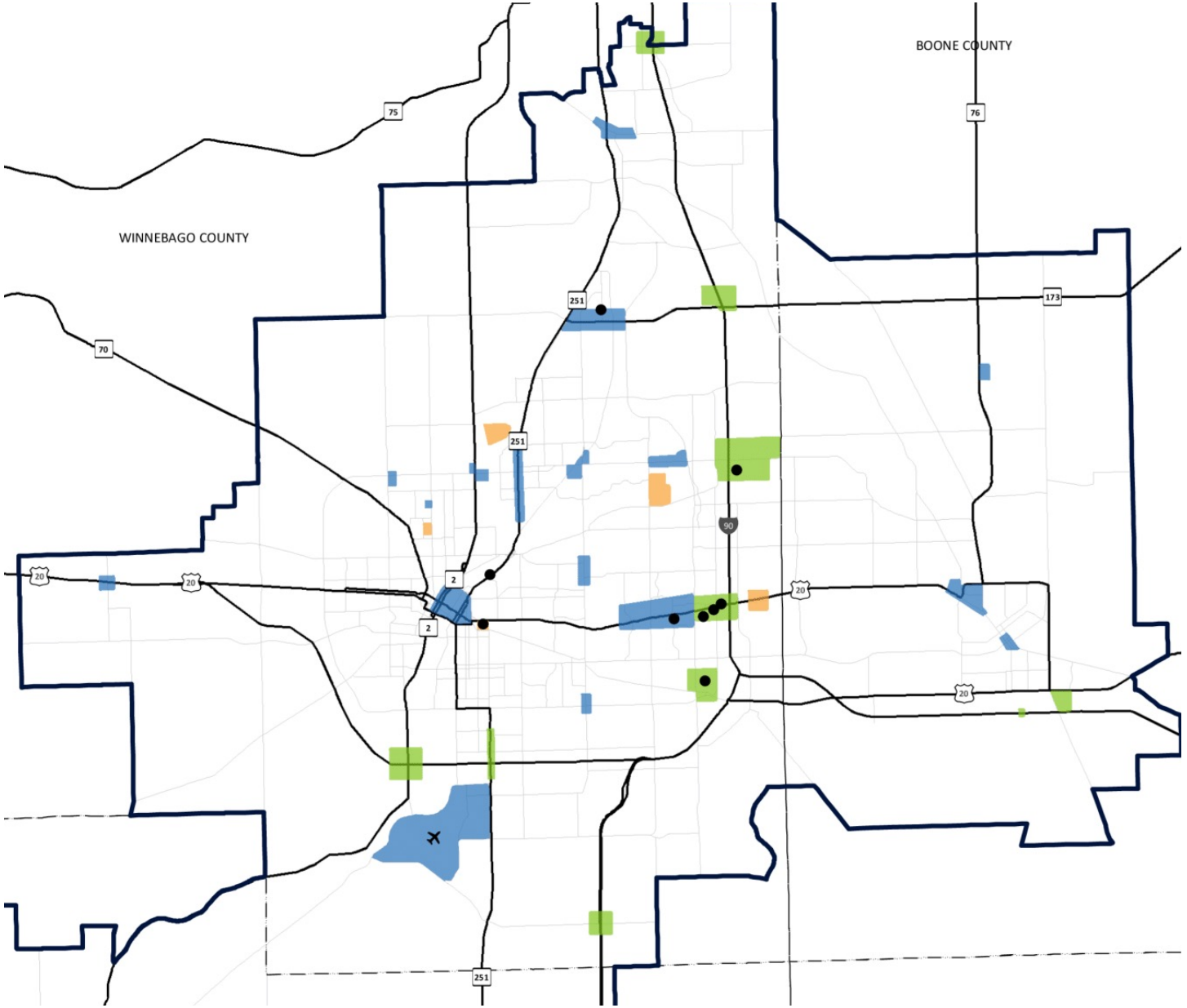
Barriers

- Higher initial purchase costs ($30,000 - $90,000+)
- Consumers underinformed or misinformed on:
  - Available models and attributes
  - Performance and safety
  - Available incentives
- Range anxiety

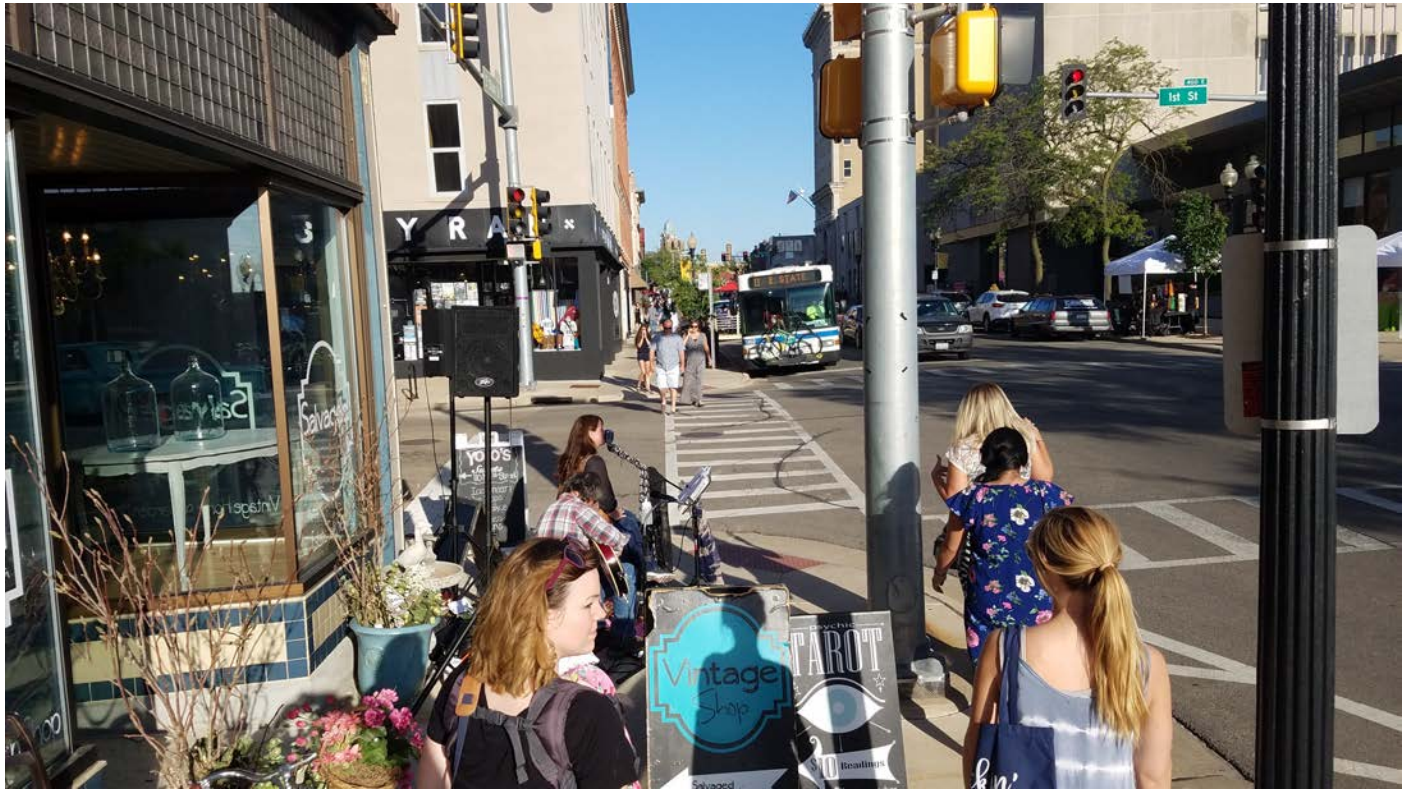
ALTERNATIVE FUEL VEHICLES

Becoming an EV-Ready Community

1. Establish a robust network of public charging station infrastructure in the study area.
2. Integrate electric vehicle supply equipment into public policies and planning efforts.
3. Act as a leader in coordinating efforts to make Northern Illinois EV-Ready.


BOONE COUNTY
WINNEBAGO COUNTY
75
76
70
251
173
90
20
2
Priority Zones
Fast Charging Zone
Convenience Charging Zone
Leisurely Charging Zone
Existing Charging Stations

COMPLETE STREETS



COMPLETE STREETS

A transportation policy and design approach that requires streets to be designed and operated to enable safe use and support mobility of all users.

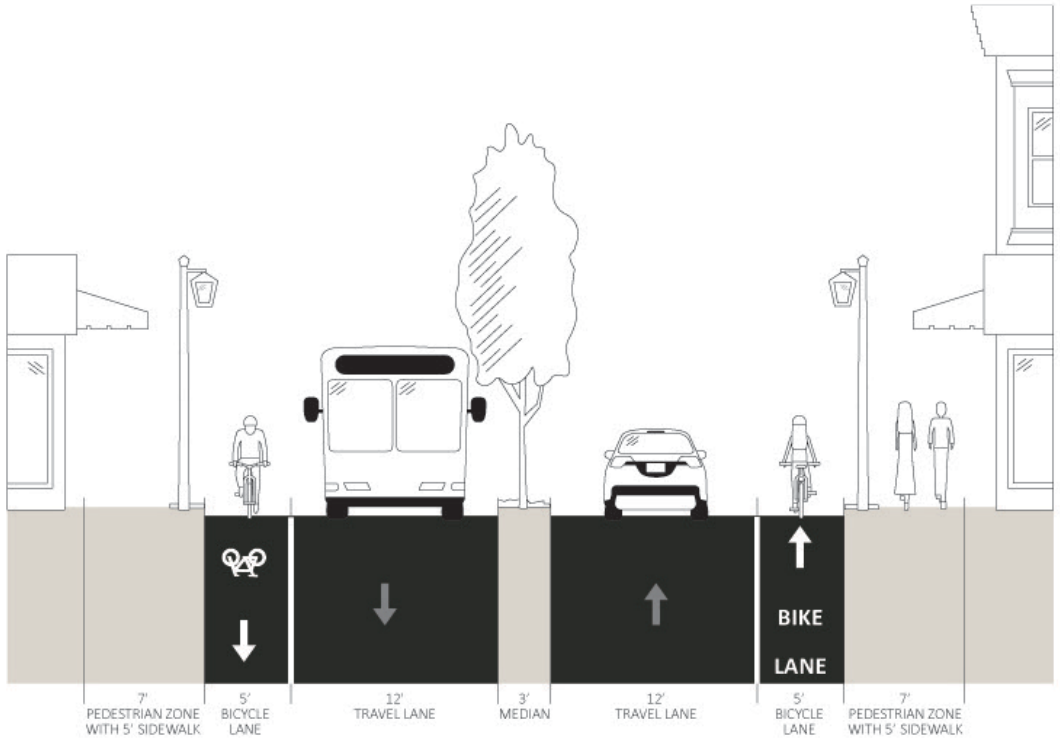
Source: Federal Highway Administration

- There is no single formula or approach to creating complete streets. Each is unique and responds to the context of the surrounding area.
- Could include:
  - Sidewalks
  - Bike lanes (or wide paved shoulders)
  - Special bus lanes
  - Public transportation stops
  - Road diet measures
  - Landscaping
  - EV charging stations
- **1,520** policies nation wide in 2020.

COMPLETE STREETS

Benefits

- Environment: Promotes lower-emission travel options, can incorporate more green infrastructure
- Health: Increases physical activity, address chronic disease (asthma, diabetes, heart disease), reduces human exposure to transportation-related emissions
- Safety: Incorporates of road users, slows cars, prevents crashes
- Economic: Boost employment levels, property values, investments from private sector, net new businesses



Source: Smart Growth America

COMPLETE STREETS

Local Perspective

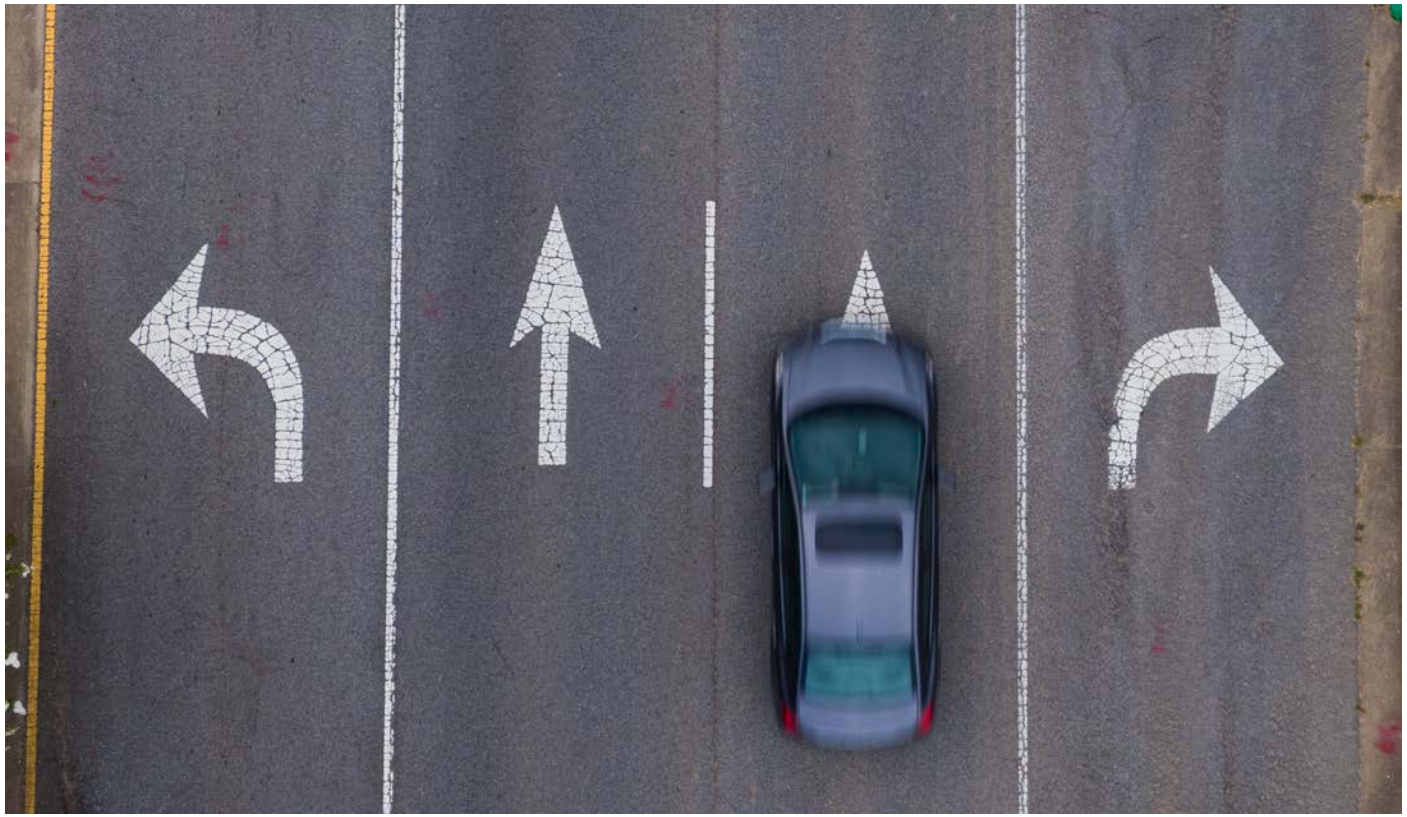
Local Complete Streets Policies

- Illinois Department of Transportation (2010)
- City of Rockford (2017)

Still Needed:

- More local champions (elected, municipal staff, & advocates)
- Regional Complete Streets policy
- Further incorporation into transportation planning documents and initiatives.

CONNECTED & AUTONOMOUS VEHICLES (CAV)



CONNECTED & AUTONOMOUS VEHICLES (CAV)

Connected Vehicle: A connected vehicle has internal devices that allow it to connect to other vehicles or with an external infrastructure system.

Source: Federal Highway Administration

Autonomous Vehicle: Also known as self-driving or driverless vehicles, are vehicles in which some aspect of control is automated by the car.

Source: National Highway Traffic Safety Administration

There is still not enough information to know how CAV will impact the transportation system.

Potential Benefits

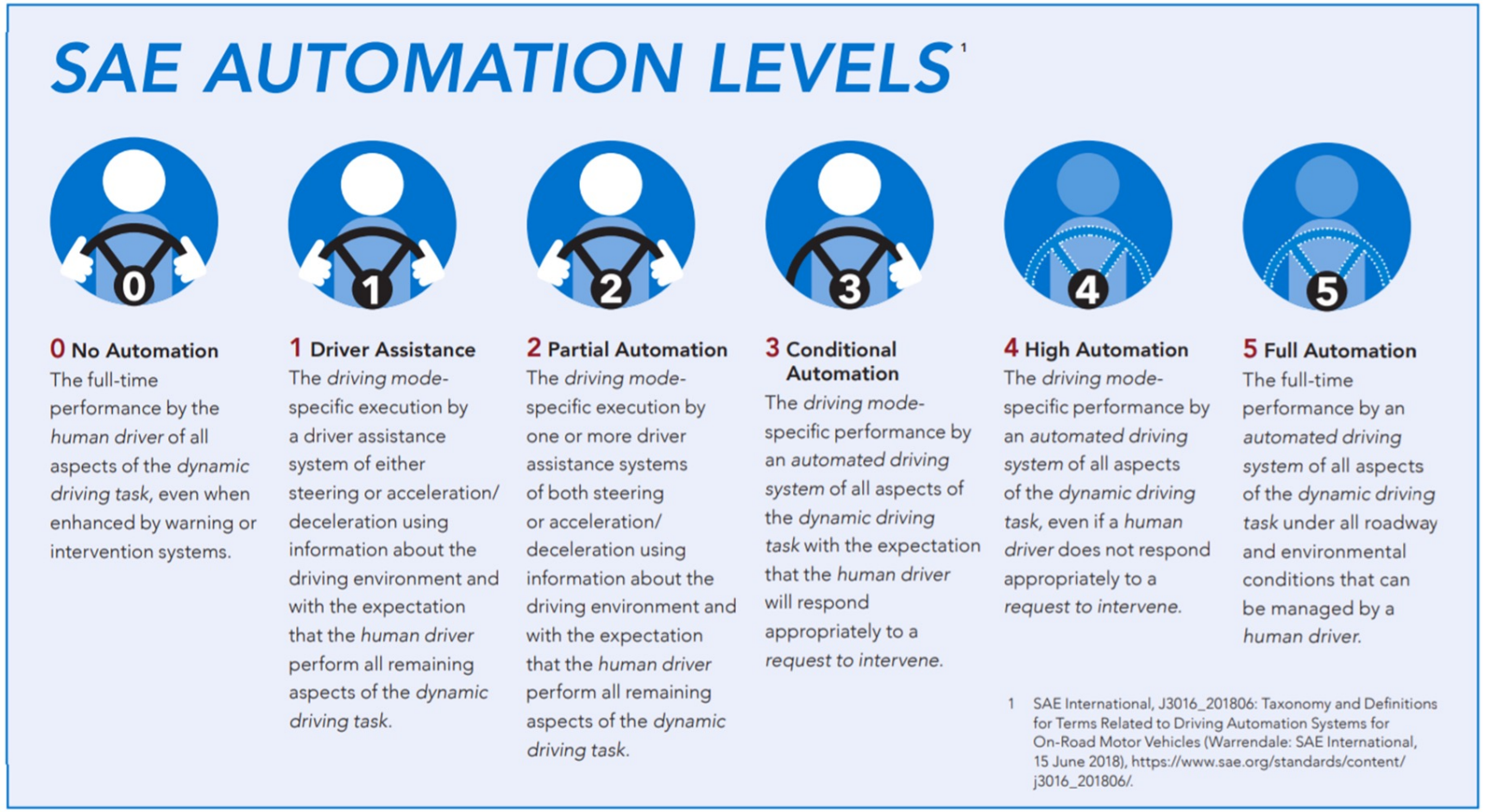
- Decreased congestion
- Reduced crashes
- Lower emissions

Potential Challenges

- Increased vehicle miles travelled
- Parking constraints
- Uniformity of policies and regulations

AUTONOMOUS VEHICLES

Levels of Automation



CONNECTED & AUTONOMOUS VEHICLES

How do we plan for uncertainty?

Develop a CAV Readiness Study

- Review of existing technology and academic papers
- Develop local context
- Conduct scenario planning
- Identify potential policies and programs

Elements to consider:

- Vehicle ownership
- Urban vs rural
- Safety for all users
- Phasing of AV on roadways
- Intelligent Transportation Systems/Technology needed
- Curb Management
- Land Use patterns
- Public transit
- Cyber security

FREIGHT

FREIGHT

Goods transported in bulk by truck, train, ship, or aircraft.

Source:.

Freight is not only related to transportation infrastructure and movement but also economic development.

Economic:

- Employment related to freight-dependent sectors: **48.5%**
- GDP tied to freight sectors: **57.4%**

Transportation

- Miles of classified truck routes: **356.3**
- Miles of railroad tracks: **130.2**
- Class I Railroads: **3** *(Canadian National, Canadian Pacific, Union Pacific)*

Commodity Flows

- Landed weight at RFD: **2.3 billion lbs.**
- Tons of ground cargo originated or terminated in 3-county region: **46.9 million** (2014)
- Top Commodities: **Gravel, cereal grains, non-metal materials, machinery, base metals, motorized vehicles, & electronics**

FREIGHT

Issues & Opportunities

Issues & Needs

- Intersection geometry
- Last-mile deliveries
- Workforce
- Weight and dimension restrictions
- Traffic signals
- Truck parking
- Bottlenecks
- Highway-rail grade crossings

Opportunities

- Intelligent Transportation System (ITS)
- Autonomous Trucks
- Broadband
- E-Commerce
- Intermodal Connectivity
- Public Private Partnerships

PUBLIC TRANSIT

PUBLIC TRANSPORTATION

Transportation by bus, rail, or other conveyance, either publicly or privately owned, which provides to the public general or special service on a regular and continuing basis.

Also known as "mass transportation", "mass transit" and "transit."

Source: American Public Transportation Assoc.

Rockford Mass Transit District:

- Service Area: **150 sq. miles**
- Service Types: **Fixed route & demand-response**
- Number of Fixed Routes: **19**
- Fixed route ridership: **1,519,254** (2019)

Stateline Mass Transit District:

- Service Area: Roscoe, Rockton, & S. Beloit
- Service Types: Demand-response

Boone County Public Transportation:

- Service Area: Boone County
- Service Types: Demand-response

PUBLIC TRANSPORTATION

Top Three Transit Priorities

Rider Survey

1. Add night service on weekends
2. Have weekday buses come more often
3. Enhance existing Sunday service

General Transit Survey

1. Add or improve bus routes in underserved locations
2. Have weekday buses come more often
3. Add night service on weekends

PUBLIC TRANSPORTATION

Human Services Transportation Plan

1. Maintain and enhance transportation service levels to meet the existing and growing needs of the region.
2. Improve safety, comfort, and accessibility of public and human transportation services.
3. Improve coordination and communication between transportation providers, nonprofit organizations, and governmental agencies and seek efficiencies in service delivery.
4. Increase awareness of public and human transportation services in the region to grow ridership.

RESILIENCY

TRANSPORTATION RESILIENCY

The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions.

Source: Presidential Policy Directive/PPD-21

Three Main Themes

- Reducing the likelihood of a disaster and increasing the ability of a community to absorb or resist a shock,
- Increasing the adaptability of a system while maintaining functions in the presence of a shock, and
- Reducing the time to recovery to normal functioning, which might be different from pre-event functioning.

TRANSPORTATION RESILIENCY

4R Framework

Robustness

- Ability of system elements to withstand disaster forces without significant degradation or loss of performance

Redundancy

- Extent to which system elements are capable of satisfying functional requirements, if significant degradation or loss of functionality occurs

Resourcefulness

- Ability to diagnose and prioritize problems and to initiate solutions by identifying and mobilizing material, monetary, informational, technological, and human resources

Rapidity

- Capacity to restore functionality in a timely way, containing losses and avoiding disruptions

TRANSPORTATION RESILIENCY

Preparing for Disruptions

1. Inventory of Assets
2. Potential Hazards
3. Vulnerability Assessment
4. Scenario Planning
5. Strategy Development

SHARED MOBILITY

SHARED MOBILITY

Transportation services that are shared among users, including:

- Bike sharing,
- Carsharing,
- Ridesharing (carpooling, van-pooling),
- Ride sourcing, and
- Scooter sharing.

Source: Federal Highway Administration

- Bike sharing: Short-term bike rental, usually for individual periods of an hour or less.
- Carsharing: People rent cars for short periods of time, often by the hour.
- Ridesharing: A formal or informal arrangement where commuters share a vehicle for trips from a common origin, destination, or both.
- Ride sourcing: Online platform to connect passengers with drivers and automate reservations, payments, and customer feedback.
- Scooter sharing: Short-term electric scooters (e-scooter) rentals, usually for periods less than an hour.

Sydney Turner

Director Of Regional Planning

D 815-319-4185

E sturner@r1planning.org

green town

GreenTown Rockford

November 12 | Embassy Suites Rockford Riverfront