Ames Area MPO
metropolitan planning organization

Chapter 12:
LRTP Summary and Implementation

HDR

CHAPTER 12: LRTP SUMMARY AND IMPLEMENTATION

This Chapter summarizes the proposed LRTP, provides strategies for the Ames area transportation system and discusses performance measures to monitor the LRTP's effectiveness at meeting the goals and objectives discussed in Chapter 2.

12.1 Proposed Plan Summary

The proposed LRTP projects are discussed in detail in Chapter 8 and in Appendix A. This section provides a brief summary of the proposed LRTP.

SHORT-TERM PLAN

The Short-Term Plan includes projects that are anticipated to be implemented during the first 10 years (year 2011 – 2020) of the plan. These projects are shown in **Table 12.1**.

Table 12.1. Short-Term Plan

Alternative Project Number	Project Description
Roadway Projects	
7	Mortensen Rd. Widening - S. Dakota Ave. to Dotson Dr.
8	Dotson Dr. Connection - Lincoln Way to Mortensen Road
9	Lincoln Way Widening - Marshall Ave. to Franklin Ave.
10	State Ave. / Mortensen Rd. Roundabout
11	N. Dakota Widening - Ontario Street to 215th Street
13a	Haber Road Study
16b	Grand Ave. / 13th Street Intersection Improvements- Add Left-Turn Lanes
17	30th Street / Duff Ave. Lane Reductions - Hoover Ave. to 13th Street
19a	Lincoln Way Lane Reduction - Gilchrist Ave to Duff Avenue
20	S. 16th Street Widening - University Blvd. to Vet Med Trail
23	Freel Dr. Reconstruction / Extension to Dayton Ave.
26	Cherry Ave. Extension - Lincoln Way to SE 5th Street
28	Ontario St. Left-Turn Lane - Hyland Ave. to N. Dakota Ave.
29	Lincoln Way / Duff Avenue Intersection Improvements
30	Grand Ave. Extension - Squaw Creek Dr. to S. 16th / 5th Street Extension- Grand Ave. to Duff Ave.
31	Hyland Ave. Study - Pammel Drive to Sheldon Avenue
Bicycle/Pedestrian Projects	
BL1	On-Street Bike Lane On Duff Ave - 30th St / Northwestern Ave to 13th St / Duff Ave
BL2	On-Street Bike Lane On 500th Ave - Lincoln Way to Mortensen Rd Extension
BL3	On Street Bike Lane on Lincoln Way - Gilchrist St to Duff Ave
SUP2	Shared Use Path Along Stange Rd - Dalton St to Cameron School Rd.
SUP5	Shared Use Path Along E 13th St - Dayton Ave to 570th Ave
SUP7	Shared Use Path to Proposed Intermodal Facility - East of State Ave
SUP10	Shared Use Path Along Mortensen Rd - West of South Dakota
SUP11	Shared Use Path Along Proposed Grand Ave Extension to S 16th St
SUP12	Shared Use Path Along S Dayton Ave - SE 16th Ave to S Dayton Pl
SUP13	Shared Use Path to Recreational Park - East of Duff Ave
SUP 14	Shared Use Path Along Lincoln Hwy - N 500th Ave to Wilder Blvd and Hartford Dr to Thackeray Ave
SUP 16	Shared Use Path Along Proposed Mortensen Extension - Miller Ave to Y Ave
SUP 17	Shared Use Path Along S Duff Ave from Lincoln Way to S 3rd St
SH1	Sharrow on Hoover Ave and Northwestern Ave - Bloomington Rd to 6th St
SH2	Sharrow on Clark Ave - 24th St to S 3rd St
SH3	Sharrow on 13th St - N Dakota Ave to Meadowland Ave
SH4	Sharrow on Duff Ave - 13th St to Lincoln Way
SH5	Sharrow on Pammel Dr / University Blvd - Hyland Ave to S 4th St
SH6	Sharrow on Beach Rd / Osborn Dr - University Blvd to Lincoln Way
SH7	Sharrow on 6th St - University Blvd to Duff Ave
SH8	Sharrow on Union Drive - Morrill Dr to Lincoln Way
SH9	Sharrow on Lincoln Way - Freel Dr to Dayton Ave
SH10	Sharrow on S 4th St / S 3rd St - University Blvd to Duff Ave
SH11	Sharrow on Airport Rd - N Loop Dr to S Riverside Dr
SH12	Sharrow on Westbrook Dr/ Hickory Dr/Woodland St/West St - N Dakota Ave to Hyland Ave
SH13	Sharrow on Proposed Wilder Blvd - Lincoln Way to Mortensen Rd
II	Intersection Improvements for Non-Motorized Users

Alternative Project Number	Project Description
Transit Projects	
1	Extend Pink Route to Proposed 13th Street Commercial Development
2	Extend Purple Route to Wilder Blvd.
3	Extend Blue Route to Wal-Mart and Target
4	Cross Town Route- Fieldstone Development to Mortensen Road
5a	Intermodal Facility Phase I
5b	Intermodal Facility Phase II
5c	Intermodal Facility Circulator
6	Bus Stop Improvements
7	Increase Frequencies on Core Routes to 15/30 Minutes from 20/40 Minutes
8*	CyRide Facility Expansion
9	Alternatives Analysis Study - Orange Route Corridor
10	Des Moines/Ames Commuter Service Study
11	Articulated Buses on Red/Orange Routes
12	Automatic Vehicle Location Technology

**This project is being built in phases; depending on funding, some phases of this project may be built in the Long-Term Plan*

LONG-TERM PLAN

The Long-Term Plan inlcudes projects that are anticipated to be implemented during the last 15 years (year 2021 – 2035) of the plan. These projects are shown in **Table 12.2**.

Table 12.2. Long-Term Plan

Alternative Project Number	Project Description
Roadway Projects	
1A	Bloomington Road Extension Study (West).
2	500th Avenue Reconstruction - W. Lincoln Way to Mortensen Road
3	Mortensen Road Extension - 500th Ave. to Miller Ave.
12a*	Stange Rd. / 13th Street Intersection Improvements - Roundabout
15†	Grand Ave. / 20th Street Intersection Improvements
18	Duff Ave. Underpass at Union Pacific Railroad
21	Grand Ave. Extension - S. 16th to Airport Rd.
22	S. Duff Ave. Widening - Kitty Hawk Dr. to Ken Maril Rd. (now 3 lane)
25	Bloomington Rd. Extension - Grand Ave. to Dayton Ave.
Bicycle/Pedestrian Projects	
SUP1	Shared Use Path Along Union Pacific Railroad - North of Bloomington Road
SUP8	Shared Use Path Along Walnut St - S 3rd St to Squaw Creek
SUP9	Shared Use Path Along Squaw Creek - Proposed Grand Ave Extension to Skunk River
PS1	Paved Shoulder on N Dakota Ave - North of Ontario St
PS2	Paved Shoulder on State Ave and Oakwood Rd - South of Mortensen Rd

**Depending on more detailed analysis, this project may be switched with Project 12b.*
†Illustrative

2035 Proposed Plan Analysis

The Proposed Plan projects were analyzed using the travel demand model to develop projected year 2035 average daily traffic volumes. An Intersection Capacity Utilization (ICU) analysis was performed for year 2035 Proposed Plan of key intersection with the proposed geometrics. The Proposed Plan year 2035 peak hour volumes were developed using the 2035 E+C peak hour turning movement volumes, 2035 E+C annual daily traffic (ADT) volumes on each key intersection leg, and Proposed Plan year 2035 ADT volumes on each key intersection leg generated with the travel demand model.

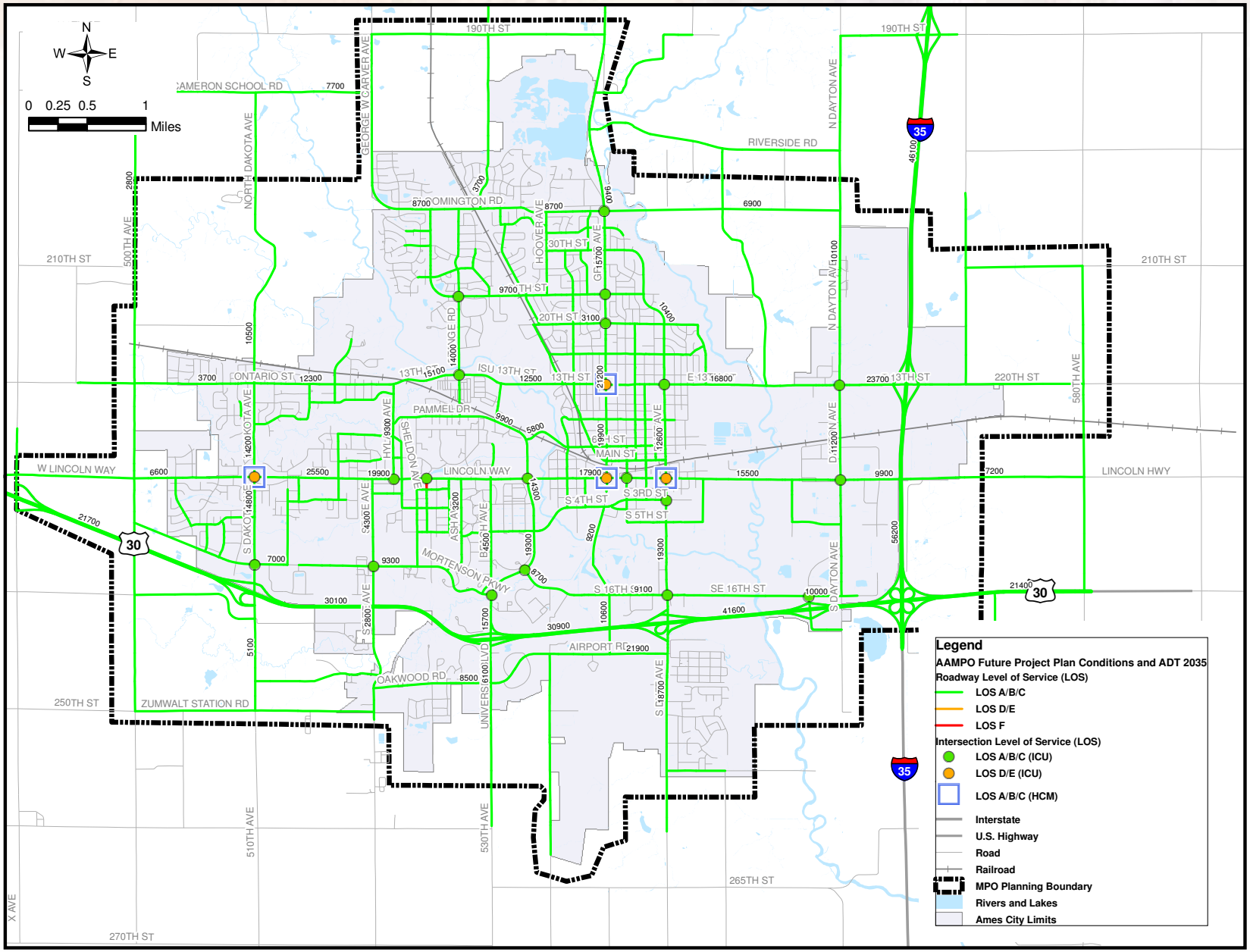
The Roadway level of service (LOS), ICU LOS, and ADT's for the Proposed Plan year 2035 conditions analysis are shown in Figure 12.1.

The intersections that are shown to operate in the peak hour with unacceptable ICU LOS (LOS D or worse) even with the proposed plan projects include the following:

- Peak Hour LOS D/E:
  - 13th St / Grand Ave
  - Lincoln Way/ Dakota Ave
  - Lincoln Way/ Grand Ave
  - Lincoln Way / Duff Ave

For the intersections with an unacceptable peak hour ICU LOS, a more detailed level LOS analysis was conducted using the Highway Capacity Manual (HCM) methodology. All of the intersections analyzed using the HCM LOS methodology are shown to operate with an acceptable LOS during the peak hour. The results of the HCM LOS are presented on **Figure 12.4**.

Figure 12.4. 2035 Proposed Plan ADT and LOS



12.2 Transportation Strategies

Throughout the LRTP various transportation strategies were presented in order to address the goals and objectives identified through the Issues and Vision process. This section summarizes the various transportation strategies recommended for implementation.

TRAVEL DEMAND MANAGEMENT

TDM strategies are designed to reduce the demand for transportation and thus reduce the number of vehicles using the system. TDM strategies accomplish their goals by effectively changing people's travel behavior and focus on reducing the number of single occupant vehicle (SOV) work-trips during peak periods. TDM can be geared towards the general population (transit), those living in the same neighborhood (carpool/ vanpool) and to individuals (telecommuting, flex-time). Various TDM strategies are discussed in detail in Chapter 6. The following is a summary of the TDM strategies:

- **Strategy 1: Aggressive Land Use/ Urban Design -** Land use decisions and policies are critical in creating an environment to support mobility. Improved urban design could be integrated into vital areas of Ames. Incorporating urban design elements into key corridors with transit, and creating dense areas with a pedestrian orientation will be necessary to foster comfortable, walkable areas in an urban format.
- **Strategy 2: Create Trip Reduction Ordinance -** Establishing a city-wide Trip Reduction Ordinance (TRO) that would influence the way that new development would occur is cost effective and creates standard land use and design elements that support successful employee trip reduction programs and mobility-friendly communities.
- **Strategy 3: Create Transportation Management Association (TMA) -** A Transportation Management Association (TMA) is a public/private partnership formed so that employers, developers, building owners, and government entities can work collectively to establish policies, programs and services to address local transportation problems.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) are a transportation system approach designed to use technology and the application of traffic management and operations methods to improve the efficiency of a transportation network. ITS improvements may also lower the amount of congestion experienced by users and preserve the existing capacity of the transportation system. Various ITS strategies are discussed in Chapter 6. The following is a discussion on one of those strategies, advanced traffic signal control systems:

- **Advanced Traffic Signal Control Systems -** Advanced traffic signal control systems can improve the efficiency of a corridor without making physical changes to the roadway network. One type of advanced traffic control systems is adaptive traffic control. Adaptive traffic control is an innovative traffic management tool that automatically updates signal timings at both a local and corridor optimization level. Adaptive technology is a good tool to decrease congestion while improving the speed, travel time, and number of stops along an arterial.

SAFETY

The increased interest in safety can be credited to a continuing emphasis by the U.S. DOT on safety and the public's receptiveness to programs that save lives and advocates better quality of life for users of the nation's transportation systems. Various safety strategies/considerations are discussed in Chapter 10. The following is a summary of the safety strategies/considerations:

- **Roundabouts -** A modern roundabout is a roadway junction where vehicles circulate counterclockwise around a center island. There are several benefits to the installation of a roundabout compared to a signalized intersection including:
  - Safety
  - Sustainability
  - Reduction in off-peak delay
  - Long-term maintenance cost savings

  There are several roundabout projects that have been identified in the LRTP. Consideration should be given to implement other locations for roundabouts as areas are reconstructed or as new development occurs.

- **Access Management -** The Transportation Research Board (TRB) Access Management Committee defines access management as the systematic control of the location, spacing, design and operation of driveways, median openings, interchanges, and street connections. Access management also includes roadway design treatments such as medians and auxiliary lanes, and the appropriate spacing of traffic signals. By managing roadway access, government agencies can increase public safety, extend the life of major roadways, reduce traffic congestion, support alternative transportation modes, and improve the appearance and quality of the built environment. In areas of dynamic development, such as the S. Duff Avenue corridor, it is important to define access standards that achieve a balance between property access and functional mobility of the road system.

BICYCLE/PEDESTRIAN

Bicycling and walking as healthy modes of transportation, or as purely recreational activities, provide positive benefits in many areas including personal health, the health of the environment, reduced traffic congestion, improved quality of life, and the increased economic vitality of communities that have emphasized bicycle and pedestrian mobility. Chapter 6 and Appendix B provide a discussion of bicycle/pedestrian projects and strategies. The following is a few additional strategies related to bicycle/pedestrian facilities:

- **Complete Streets –** A complete street is one that is designed and operated to enable safe and comfortable access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities are able to safely move along and across complete streets. Instituting a complete streets policy ensures that the entire right-of-way is designed and operated to enable safe access for all users. Complete streets policies recognize that there is a need for flexibility as all streets are different and users needs will be balanced.

- **Bicycle Parking –** In order to promote the use of bicycles as an alternate mode of transportation, consideration of bicycle parking at areas of high need are encouraged. Bicycle parking needs to be visible, accessible and convenient.

- **Bicycle Signal Detection –** Traditional traffic signal detection is unable to detect the presence of the bicycles. On corridors with heavy bicycle volumes, it is recommended to add bicycle signal detection when the traffic signals are either being constructed, replaced or upgraded.

12.3 Performance Measures

In order to monitor the LRTP's effectiveness, performance measures have been developed that relate to the goal and objectives. This data has not typically been collected in the past, so the initial collection of this data will establish the base values for future year comparisons. There may be some performance measures that AAMPO may be unable to collect at this time. Also, some of the objectives cannot be directly measured.

1. Developing a Safe and Connected Multi-Modal Network

- Increase the connectivity of all modes including automobile, public transit, bicycle, air travel, freight rail and pedestrian.
  - Measure – Inventory of total system miles of roadways, bicycle/pedestrian facilities and transit services on an annual basis.
- Incorporate strategies to promote safety and security across the entire network.
  - Measure – Monitor crash rates on annual basis for the transportation network.

2. Fostering Livability, Quality of Life, and Sustainable Development

- Match the transportation system with the desired community development pattern.
  - Measure – Not directly measured.
- Link land uses with a multi-modal network to reduce vehicle miles traveled and enhance non-automobile modes as an efficient mean of travel and a recreational opportunity.
  - Measure – Calculate the total vehicle miles traveled (VMT) on the area's roadway system each time the system-wide traffic counts are updated. Collect the total transit passenger miles on an annual basis.
- Reduce overall system vehicular hours traveled and improve regional access and travel times for emergency response.
  - Measure – Conduct studies to determine average travel time for selected origin-destination sets.

3. Delivering Context Sensitive Solutions

- Develop context sensitive transportation facilities that fit the physical setting and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility.
  - Measure – Not directly measured.

4. Supporting Area Economic Opportunities

- Develop a transportation system that provides desirable linkages to existing developments, new developments, redevelopments, and supports economic drivers, such as the airport.
  - Measure – Percent of top 20 traffic analysis zones with the highest total employment that are served by all modes of transportation (roadway, bicycle/pedestrian and transit) on an annual basis.

5. Maximizing the Benefits of Transportation Investments to Provide Efficient Transportation Service

- Preserve and maintain existing transportation infrastructure and enhance transportation system to reduce congestion on major corridors.
  - Measure – Provide annual update on roadway conditions through the Pavement Management Program.
- Consider cost-effectiveness, initial capital costs, and life cycle costs for transportation projects.
  - Measure – Conduct a cost analysis prior to implementation of transportation projects.

- Provide a transportation system that yields a favorable benefit to cost ratio by increasing vehicle occupancy, minimizing per capita vehicle miles traveled by auto, reducing delay, or promoting travel by non-auto modes for a practical cost.
  - Measure – Assess the benefits and cost prior to implementation of transportation projects.

6. Protecting Environmental Resources

- Minimize transportation system infringement into undisturbed areas of identified natural resources.
  - Measure – Inventory of impacted natural resources by new/widened roadways on an annual basis.
- Minimize transportation system impact on property and the human environment.
  - Measure – Inventory of impacted property and human environment by new/widened roadways on an annual basis.

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