Chapter 3: Action Plan Recommendations

Recommendations for Ann Arbor

The expected result of any transportation plan is a list of recommendations to meet existing and future transportation needs. This chapter details recommendations over the next twenty years, including what department should lead, when the recommendation should be implemented, and why the recommendation was made.

The overarching theme for recommendations is that roadways should not be reserved just for motorized vehicles, but should encompass and accommodate all modes of transportation. Improvements in corridors should not be for the sake of vehicle mobility, but instead should enable people to access their destination regardless of their chosen mode of travel.

Because the City of Ann Arbor desires a transportation system with an emphasis on utilizing all modes of transport, many of the refined recommendations found in this chapter have been made with the idea that all modes be considered when assessing a corridor. However, it should be noted that providing this emphasis can not be applied to all corridors, due to various different reasons, including right-of-way constraints, the environment, or the type of facility or roadway.

Corridor Prioritization

Corridors within Ann Arbor were given a prioritization based on the desire that all facets of a corridor should be improved at the same time. Corridors were prioritized by importance in order to coordinate when multimodal improvements should occur. Below is a list of corridors in the priority order with which transportation improvements are important to Ann Arbor. Of course, due to budget constraints and required coordination for certain projects, prioritization cannot always follow the list below. Therefore, this priority list should be considered a guiding tool when considering projects of equal merit,with priority given to the most important corridor.

High-Priority Corridors

The corridors listed here are those that are considered the most important for future transportation to and through the city. They are considered vibrant gateways to the city, but some are congested especially during the morning and evening peak hours. Thus, these corridors should have the highest priority when considering transportation projects.

- State Street
- Washtenaw Avenue
- Plymouth Road
- S. Main Street/Ann Arbor-Saline Road
- N. Main Street
- Fuller Road
- Ellsworth Road

Medium Priority Corridors

Medium priority corridors are those that are important to the overall transportation health of the city, but have a lower priority and should be considered only after considering projects on the high-priority corridors. Some of the projects associated with these corridors are actually recommended to advance during the short-term time frame, and are listed as such here.

- Jackson Avenue
- Dexter Avenue
- Packard Street
- Liberty Street
- Miller Avenue
- Stadium Boulevard
- Eisenhower Parkway
- Platt Road
- Scio Church Road
- Maple Road
- Huron River Parkway
- Geddes Road

Low Priority Corridor

Low priority corridors are those that are important to the overall transportation health of the city, but either do not have recommendations or have projects that are less important than on some other corridors. Even if they do not have projects currently listed, they are still listed here because there is potential for projects to change in the future.

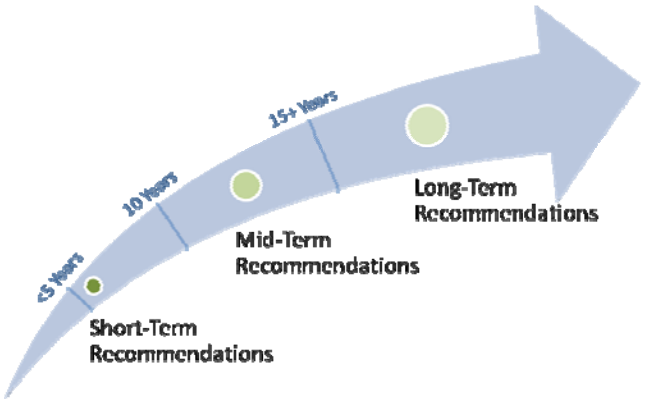
- Newport Road
- Pontiac Trail
- Stone School Road
- Nixon Road
- E. Huron River Drive
- Seventh Street
- Green Road
- Dhu Varren Road
- Broadway Street

Recommendations by Time Frame

Recommendations in this chapter are prioritized by short-, mid-, and long-term timeframe, reflecting the goals and vision supported by city policies for transportation in Ann Arbor as identified in Chapter 2. This prioritization is essential to guiding the city's capital budget decisions to assign resources for implementation, especially when resources for transportation projects are scarce. As more of these recommendations are implemented over the next 20 years, Ann Arbor's vision for an integrated multi-modal transportation system will be increasingly evident. However, some priorities may need to be shifted over time as traffic data are updated, new development changes transportation needs, or funding becomes available for specific initiatives. It may appear to be a time-specific plan, but initiatives and/or opportunities may reprioritize this list over time.

The short-, mid-, and long-term time periods also reflect the existing and proposed future land use plans for Ann Arbor. Since transportation investments influence land use (and vice-versa), transportation and land use recommendations are inextricably tied in charting the course of the city's development. The plan carefully examines the current and future land use patterns and development design along corridors identified for enhanced transit service to ensure sustainable, effective transportation investment. As reflected in the recommendations, developing corridors will include pedestrian-, bicycle-, and transit-oriented design and development. Coordinated with multi-modal transportation investment, these changes will act as economic development catalysts, and facilitate public and private improvements to support a shift away from single-occupancy automobile trips.

Figure 3-1: Recommendations Time-Frame



Tables 3-1 through 3-3 outline the short-, mid-, and long-term recommendations that have been identified as a result of this study. A short description of each suggested improvement is given, as well as the location and estimated cost. A lead agency that would be responsible for coordinating and encouraging the implementation of each recommendation is also identified here. The recommendations made in this chapter should not be implemented without a coordinated effort between stakeholders, citizens, and government agencies.

A more detailed description of each recommendation, as well as the analysis that support them is available in Chapter 6. The methodology followed for this analysis is also available in Appendix D.

Short-term (<5 Years) Recommendations

The short-term time period reflects existing land use in Ann Arbor and anticipated land use changes over the next five years. These recommendations do not include those projects that have already been planned and programmed, including those listed in the regional transportation improvement program (TIP), such as the Huron River off-road path. They also include the implementation of new projects that can be executed with relative ease, such as the addition of bicycle lanes to some city streets. Table 3-1 summarizes the recommendations and then following the table there is more description on most of the recommendations. Figure 3-2 illustrates these recommendations following Table 3-1.

Table 3-1: Short-Term Recommendations

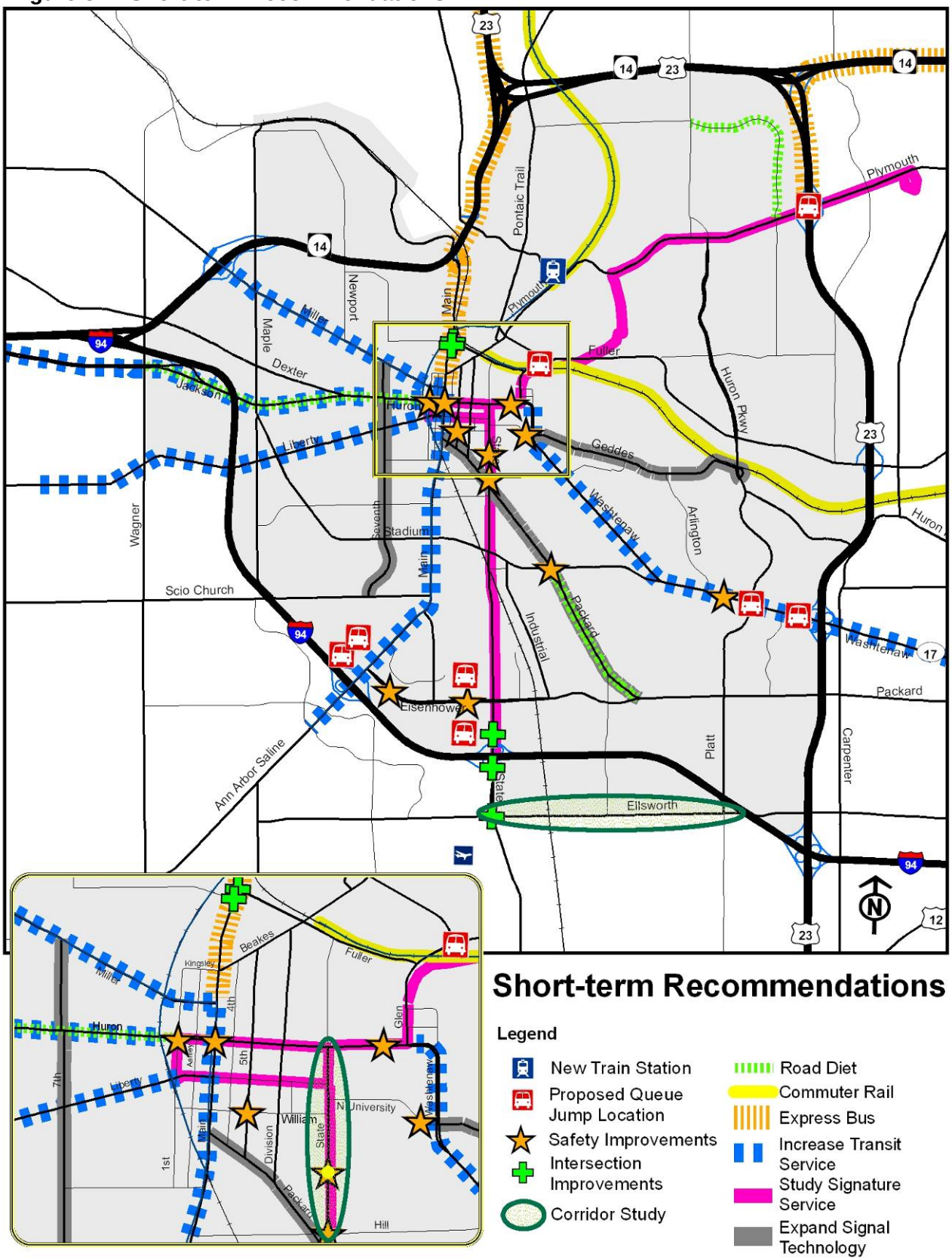
Short-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
Roadway Improvements				
1	Conduct Road Diet feasibility study for three corridors (Page 6-8 and Non-Motorized Report)	Packard, Green, and Jackson	$120,000	Ann Arbor
2	Conduct State Street Corridor Study as part of safety recommendation for State at S. University (Page 6-10)	State between Hill and Huron	$50,000	Ann Arbor
3	Conduct Corridor Study along Ellsworth Road between State to east of Platt Road	Ellsworth between State to east of Platt	$50,000	Ann Arbor
4	Conduct Downtown Bypass Study, if needed, after implementation of Fifth / Division improvements	Downtown	$100,000	Ann Arbor
5	Expand Signal Technology / SCOOT (Page 6-13)	Geddes (1 signal)	$25,000	Ann Arbor
6	Expand Signal Technology / SCOOT (Page 6-13)	Packard (12 signals)	$3,000,000	Ann Arbor
7	Expand Signal Technology / SCOOT (Page 6-13)	Seventh (6 signals)	$150,000	
8	Support US-23/M-14 ITS and MDOT Courtesy Patrol expansion between I-96 and Main Street ramps	US-23 / M-14 between I-96 and Main Street ramps	None	Ann Arbor /' AATA
Intersection Improvements and Policies				
1	Install SCOOT Traffic Signal (Page 6-6)	- State at Victors Way / Hilton - EB I-94 Off-ramp at State - WB I-94 Off-ramp at State - State and Ellsworth	$200,000 ($125,000 for new signal, $25,000 for existing signal)	Ann Arbor / MDOT
2	Retime and Coordinate traffic signals, safety recommendation for First at Huron and Main at Huron(Page 6-10)	Huron Street between 7th and Glen	$30,000	MDOT
3	Retime and coordinate traffic signals, safety recommendation for Packard at Stadium and Hill at State (Page 6-10)	Packard / Hill / Stadium / Arbor	$20,000	Ann Arbor
4	Investigate possible illegal left-turn maneuvers / intersection study, safety recommendation (Page 6-10)	Platt at Washtenaw	Internal Staff	Ann Arbor

Short-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
5	Signal Warrant Analysis recommended as part of Safety Recommendations (Page 6-10)	- Church Street at N. University - Northbrook Place at Eisenhower Parkway - Plaza Drive at Eisenhower Parkway - Platt at Washtenaw - State at S. University	Minimal / Internal Staff	Ann Arbor
6	Optimize signal timings (Page 6-6)	- Main at Depot - Main at Summit - WB I-94 Off-ramp at State - EB I-94 Off-ramp at State	Minimal / Internal Staff	Ann Arbor MDOT
7	Signalize and coordinate with adjacent signals (Page 6-6)	- NB State Street at Victors Way - SB State Street at Hilton	$100,000	Ann Arbor
	Traveler Choices (Travel Demand Management-TDM)			
1	Amend City code to require transportation impact studies for larger developments to evaluate impacts on all modes – travel reduction program (Page 2-7)	Citywide	Internal Staff	Ann Arbor: Planning
2	Expand to hire a Citywide Travel Choices Coordinator (Page 2-2)	Citywide	$100,000 yearly	Ann Arbor
	Access Management			
1	Amend zoning ordinance to include more detailed access management standards (Page 2-5)	Citywide	Internal Staff	Ann Arbor: Planning
2	Evaluate planned street projects to identify candidates for implementation of access management (Page 2-5)	Citywide	Internal Staff	Ann Arbor
	Transit			
1	Conduct alternatives analysis study for a signature service on Plymouth-Fuller and State Street corridors (Page 6-22)	Plymouth-Fuller/State	$500,000	AATA
2	Evaluate and install Signal Priority Equipment on busses (Page 6-17)	AATA Fleet	$336,000	AATA
3	Evaluate and construct queue-jumping lanes (Page 6-17)	Washtenaw between US-23 and Platt (3 signalized intersections)	$3,090,000	Ann Arbor

Short-Term Recommendations				
	Improvement	Location	Cost	Lead Agency
4	Evaluate and construct queue-jumping lanes (Page 6-17)	Ann Arbor-Saline at I-94 and Eisenhower (2 signalized intersections)	$2,060,000	Ann Arbor
5	Evaluate and construct queue-jumping lanes (Page 6-17)	Maiden Lane / Fuller / Geddes	$1,030,000	Ann Arbor
6	Evaluate and construct queue-jumping lanes (Page 6-17)	Plymouth and US-23	$2,060,000	Ann Arbor
7	Improve stop amenities on select priority corridors (Page 6-28)	Route 4 - Washtenaw (5 major stops – 4.7 miles from AA limits one way)	$123,500	AATA
8	Improve stop amenities on select priority corridors (Page 6-28)	Route 36 – State (6 major stops – 4 miles one way)	$135,000	AATA
9	Implement increased frequency on select priority corridors (Page 6-16)	Ann Arbor-Saline	$249,000 yearly	AATA
10	Implement increased frequency on select priority corridors (Page 6-16)	Jackson / Dexter	$124,000 yearly	AATA
11	Implement increased frequency on select priority corridors (Page 6-16)	Miller / Liberty	$249,000 yearly	AATA
12	Implement increased frequency on select priority corridors (Page 6-16)	Washtenaw	$373,000 yearly	AATA
13	Support the expansion of Commuter Express Bus Program to/from western Wayne County from/to Ann Arbor	Countywide	$250,000 yearly	AATA
14	Support the expansion of Commuter Express Bus to/from northern Washtenaw/Livingston County from/to Ann Arbor	Countywide	$250,000 yearly	AATA
15	Coordination for Ann Arbor to Detroit demonstration commuter rail service (Page 6-28)	Norfolk Southern Corridor	None	SEMCOG
16	Coordination by the city for development WALLY commuter rail service (Page 6-28)	Great Lakes Central corridor	None	Ann Arbor
17	Study relocation of Amtrak Station from Depot Street to Fuller Road	Ann Arbor	$250,000	Ann Arbor

Short-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
18	Implement connecting bus service and retime schedule to connect commuter rail passengers on WALLY and Ann Arbor to Detroit lines to downtown/UM core (Page 6-28)	Downtown/UM Core	$750,000 yearly	AATA
	Park and Ride			
1	Construct Park and Ride / Interceptor Lots at two locations (Page 6-26)	To be determined	$2,000,000	AATA
	Non-Motorized			
1	Implement Short-Term Recommendations from Non-Motorized Report with emphasis on high and medium priority corridors (Page 6-31)	Citywide	$250,000 yearly	Ann Arbor
2	Complete Washtenaw Shared Use Path (Non-Motorized Report)	Washtenaw corridor	TBD	Ann Arbor
3	Research converting Allen Creek Greenway into a Shared Use Path	Allen Creek Greenway	TBD	Ann Arbor
	Land Use Policy			
1	Create Design Plan Guidelines and/or Land Use practices to support a transit-oriented development overlay-type district (Page 2-3)	For designation along enhanced transit corridors	Internal Staff	Ann Arbor: Planning
2	Amend city ordinance to require Transportation Impact Analysis for rezoning and developments including trip reduction factors for certain criteria in site design (Page 2-7)	Citywide	Internal Staff	Ann Arbor: Planning
3	Increase density along enhanced transit corridors toward an average of 25-40 RE/AC and to an average of at least 50 RE/AC in the downtown via development reviews and updates of planning documents (Page 2-3)	Citywide, with emphasis along planned transit enhancement corridors	Internal Staff	Ann Arbor: Planning

Figure 3-2: Short-term Recommendations



It should be noted that land use is dynamic and will change even in the short-term. Short-term land use and transportation decisions affect the ability to implement the longer term recommendations that will achieve the city's vision for transportation.

Roadway/Intersection Improvements

A road diet feasibility study was recommended on three potential corridors: Green Road, Packard Road, and Jackson Road. A road diet is applied by reducing the number of lanes of a roadway typically from an even number of lanes to an odd number of lanes. This is done by removing one of the through lanes in each direction and creating a center left-turn lane. There is a minor decrease in capacity; however, the safety of the roadway is improved significantly for all modes of travel (vehicular, pedestrian, and bicyclists). The by-product is also an extra lane that can be converted to bike lanes. Reducing the overall width of the roadway can result in lower vehicle speeds, a reduction in induced traffic, and promotion of other modes of transportation such as cycling and/or walking. Chapter 6 of this report provides a preliminary road diet study of Packard Road, however, additional analysis is still needed at Packard and Stadium. These three roadways should be evaluated as potential road diet projects for the city.

Analysis of sixteen intersections as part of this plan update indicates operations at several intersections could be improved with signal optimization or implementation of an advanced signal system (SCOOT). Signal optimization and coordination can add efficiency to the system and reduce congestion without high-cost capital improvements. Table 6-4 in Chapter 6 shows in detail the optimization recommendations for these intersections. High crash locations were also evaluated throughout the city. Short-term safety recommendations for these locations include corridor analysis of State Street, signal warrant analysis at currently unsignalized intersections, and continued observation by the City of Ann Arbor staff.

Access Management

With respect to access management, the short-term recommendations of this plan include amending the city's zoning ordinance with a comprehensive access management ordinance drafted as part of the Washtenaw Corridor Access Management Plan (WCAMP). Another short-term recommendation of this plan is to establish protocol for an access management study to be prepared prior to the design phase of any street project to identify specific access management improvement opportunities that would support a safer and more efficient transportation system. Recommendations from those plans should then be incorporated into the street design to increase convenience and ensure recommended changes are implemented.

Transit

An alternatives analysis study will be conducted by the city to analyze the potential of signature /high-quality transit improvements on both the Plymouth Road/Fuller Road corridor in the northeast portion of the city and the State Street corridor in the southern portion of the city. This analysis is anticipated to begin in 2008 and should be completed by the end of 2009. Under this schedule, construction of signature transit improvements is possible within the short-term time frame, however, it is listed within the mid-term timeframe of this plan due to complexity of construction and funding.

It is recommended that transit-supportive intersection improvements such as queue jumping lanes and traffic signal prioritization should be implemented along select high priority corridors in order to maintain a high level of service. Figure 3-3 illustrates an example of a queue-jump at an intersection. A queue-jump allows a bus to receive a green light a few seconds before the other traffic receives a green light. This allows the bus to move ahead of any traffic waiting at

an intersection. The queue-jump lane could either be a separate bus-only lane (as shown in the figure below) or incorporated into an existing right-turn only lane.

Figure 3-3: Example of a Queue Jump

This plan recommends that the following corridors and intersections should receive transit-supportive intersection improvements in the short-term time frame in order to maintain operation efficiency on select AATA routes. Queue jumps were evaluated at some intersections where facilities might benefit, but some were not easily feasible due to physical constraints. See analysis in Chapter 6 for a full list of intersections considered.

Of the four corridors that are recommended to receive signature transit improvements, the Plymouth/Fuller and State Street corridors currently have the best potential to support signature transit. This recommendation stems from the fact that these corridors have some of the highest ridership in the AATA and UM bus systems, connect to high-use activity centers, and have potential redevelopment opportunities that could be driven by transit improvements. Thus, the next step incrementally for each of these corridors would be feasibility studies for signature transit.

Two park and ride lot locations are recommended to be built within the short-term timeframe. The locations were not specified since land availability and acquisition for all the locations listed in Chapter 6 can vary. Therefore, the recommendation remains flexible such that if land becomes available the City and/or AATA should act to construct the park and ride lot.

It is also recommended that the City of Ann Arbor continue to support the two commuter rail projects that are currently being studied, these being the Ann Arbor to Detroit east-west commuter rail study as well as the WALLY north-south study.

Non-Motorized

Since Ann Arbor recently adopted a non-motorized plan in 2007 and WATS has programmed many non-motorized improvements into their Transportation Improvement Program (TIP), short-term recommendations are to continue the implementation of these improvements as suggested in the Ann Arbor Non-Motorized Plan.

Land Use Policy

The vision of this plan emphasizes the direct relationship between land use and transportation when planning for a transportation system. Transportation is no longer just a way to serve the needs of new development; transportation investments can act as a catalyst for infill and redevelopment of a design and density to support a walkable, bikeable community. Reconstruction of a street with elements such as enhanced transit, medians, or installation of a streetscape system can attract other quality development, causing resurgence in activity and economic development/investment. This plan recommends techniques to better manage

transportation through land uses, density, and design, for transit friendly and walkable development to harmonize transportation with its surroundings.

The importance of the land use-transportation connection is reiterated throughout this plan. Implementing a successful multi-modal transportation system will rely heavily on guiding land use development in the public and private realm to support transportation investment. In the short-term, this plan recommends establishing tools and policies that will encourage an increase in land use densities along enhanced transit corridors to 25-40 RE/AC and 50 RE/AC in the downtown. Ordinance amendments to help support density include a Transit-Oriented Corridor Overlay District and Transportation Impact Analyses, as outlined below.

Transportation Impact Analysis

Because the City is striving for enhanced transit and non-motorized transportation, the availability of transit and non-motorized facilities needs to be factored in to trip generation forecasts. Transportation impact study requirements need to account for the modal shift in areas served by transit and should at the same time create incentives for transit-oriented development. A short-term recommendation of this plan includes replacing the current traffic impact study with a transportation impact analysis. Model language can be found in Appendix A for the analyses, which includes intent and details to support higher densities and transit-oriented design along multi-modal corridors.

The revised code should also require one of several forms of transportation impact analysis for a range of applications. These should include a transportation impact comparison for rezoning, a transportation impact assessment for smaller development proposals, and a full transportation impact study for large development proposals. Appendix A includes model language for transportation impact analysis requirements that includes more details including the thresholds and applicability of the various types of analyses.

Mid-Term (5-10 Years) Recommendations

Mid-term recommendations represent the time period from five to ten years in the future. During this time period, it is expected that the land use density in Ann Arbor may change and the density and diversity of development is increased in strategic locations, the need for alternative means of transportation will become even more vital. The recommendations found here will continue to develop the diversification of Ann Arbor's transportation system by emphasizing non-motorized and transit modes while also maintaining efficiency in the roadway network. Table 3-2 details the recommendations for the mid-term period. Figure 3-4 illustrates the mid-term recommendations.

Roadway/Intersection Improvements

The State Street corridor will continue to be a congested area. In the short term, signal optimization and coordination and additional signals along the corridor are recommended to help alleviate some of this congestion. However, in the mid-term, larger improvements may be needed. One recommendation for this corridor is the implementation of a boulevard between Ellsworth Road and Eisenhower Road with indirect lefts. This will reduce conflict points and provide more through capacity along the corridor.

Table 3-2: Mid-Term Recommendations

Mid-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
Roadway Improvements				
1	Evaluate/Design State Street corridor improvements (Page 6-6)	State between Ellsworth & Eisenhower	$750,000	Ann Arbor
2	Construct Ellsworth Road corridor improvements (2.2 miles)	Ellsworth between State to east of Platt	$3,200,000	Ann Arbor
3	Expand Signal Technology / SCOOT (Page 6-11)	S. Main/Ann Arbor-Saline N. Main (14 signals)	$350,000	Ann Arbor
4	Expand Signal Technology / SCOOT (Page 6-11)	Huron / Jackson (16 signals)	$400,000	Ann Arbor / MDOT
5	Implement Road Diet, if needed (Page 6-8)	Packard, Green, Jackson	$10,000 each	Ann Arbor
6	Conduct Road Diet feasibility study for four corridors (Non-Motorized Report)	Maple, Green, Platt, and Seventh	$150,000	Ann Arbor
7	Stadium Boulevard Bridges over State and the Ann Arbor Railroad	Stadium at State	$30,000,000	Ann Arbor
Intersection Improvements				
1	Construct additional southbound lane at Ann Arbor-Saline at Eisenhower and I-94 (Page 6-6)	Ann Arbor Saline at Eisenhower / I-94	$1,618,000	Ann Arbor / MDOT
2	Review William and Fifth intersection for safety concerns (Page 6-10)	William and Fifth	Minimal / Internal Staff	Ann Arbor
3	Review Stadium and Packard intersection for safety concerns (Page 6-10)	Stadium and Packard	Minimal / Internal Staff	Ann Arbor
4	Add northbound right-turn pocket, and add southbound dual left-turn lane (Page 6-6)	N. Main at Depot	$50,000	Ann Arbor / MDOT
5	Add eastbound shared right/left-turn lane (Page 6-6)	I-94 EB Off-ramp at State Street	$50,000	MDOT

Mid-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
6	Support interchange study of Washtenaw at US-23 and intersection analysis for Carpenter at Washtenaw (Page 6-10)	Washtenaw and US-23	$75,000	MDOT
7	Support interchange study of State at I-94 (Page 6-8)	State and I-94	$50,000	MDOT
Traveler Choices (Travel Demand Management)				
1	Continue supporting and expanding Travel Choices Coordinator for city (Page 2-2)	Citywide	$125,000 yearly	Ann Arbor
2	Institute a Education / Marketing Campaign on how changing modes allows citizens to be green and is better for the City	Citywide	$25,000	Ann Arbor
3	Provide shuttles to the rail station with no additional fare due to coordinated transfer with a purchase of a monthly / yearly rail pass	Downtown	$500,000 annual operating and initial $3,300,000 capital cost	Ann Arbor / AATA
4	Support expansion of Zipcar and provide special free parking spaces just for Zipcar	Downtown	No additional cost	Ann Arbor
5	Provide ability to evaluate Traveler Choices program to determine effectiveness	Citywide	$30,000	Ann Arbor
Access Management				
1	Establish line item in CIP for access improvements in and near the right-of-way (Page 6-14)	Citywide	$100,000 yearly	Ann Arbor
Transit				
1	Construct and operate signature transit on State Street corridor (Page 6-21)	State Street	$35.1-93.5 million (capital) $1.2-1.7 million (operating)	AATA
2	Construct and operate signature transit on Plymouth-Fuller corridor (Page 6-21)	Plymouth-Fuller	$44.1-117.7 million (capital) $1.5-2.2 million (operating)	AATA

Mid-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
3	Improve stop amenities on select priority corridors (Page D-18)	Route 16 – S. Main / Ann Arbor – Saline	$98,000	AATA
4	Improve stop amenities on select priority corridors (Page D-18)	Route 9 - Jackson / Dexter	$68,000	AATA
5	Improve stop amenities on select priority corridors (Page D-18)	Route 18 – Miller Road	$105,000	AATA
6	Evaluate and construct queue-jumping lanes (Page 6-17)	Plymouth and Murfin Corridors (6 signalized intersections)	$7,180,000	Ann Arbor
7	Conduct alternatives analysis study for signature service on Washtenaw corridor (Page 6-22)	Washtenaw Avenue	$750,000	AATA
8	Conduct alternatives analysis study for signature service on Jackson corridor (Page 6-22)	Jackson Road	$750,000	AATA
9	Construct permanent downtown station and UM Football station for WALLY commuter rail line (Page 6-29)	West side of downtown	$6,000,000	Ann Arbor
10	Construct permanent station at Fuller/Maiden intersection for Ann Arbor to Detroit Commuter Rail (Page 6-29)	Fuller/Maiden intersection	$10,000,000	Ann Arbor
11	Run new circulator service (or reroute the Link) to serve downtown WALLY station and Fuller/Maiden Commuter Rail Station (Page 6-29)	Downtown/UM Core	$100,000 yearly	AATA
12	Provide real-time traveler information signs at Park and Ride locations	8 Park and Ride Lots	$150,000 per location or $1.2 Million for 8	AATA
Park and Ride				
1	Construct Park and Ride interceptor lots for up to two locations (Page 6-26)	To be determined	$2,000,000	AATA
Non-Motorized				
1	Continue supporting recommendations from Non-Motorized Report with emphasis on medium-priority corridors	Citywide	$500,000 yearly	Ann Arbor

Mid-Term Recommendations				
	Improvement	**Location**	**Cost**	**Lead Agency**
2	Research highly utilized bicycle paths within the City and provide additional amenities for those paths (heated sidewalks, covered pathways)	Citywide	$100,000	Ann Arbor
Land Use Policy				
1	Evaluate and/or develop a Form-Based type code for the Downtown to more strictly regulate form and character to support transportation improvements citywide that connect into downtown (Page 2-4)	Downtown	Internal City Staff	Ann Arbor: Planning
2	Increase density along enhanced transit corridors to an average of 25-40 RE/AC and average of at least 75 RE/AC in the downtown via development reviews and updates of planning documents (Page 2-3)	Along signature transit corridors	Internal City Staff	Ann Arbor: Planning
3	Update Comprehensive Parking Management Plan	Downtown	$100,000	Ann Arbor

Figure 3-4: Mid-term Recommendations

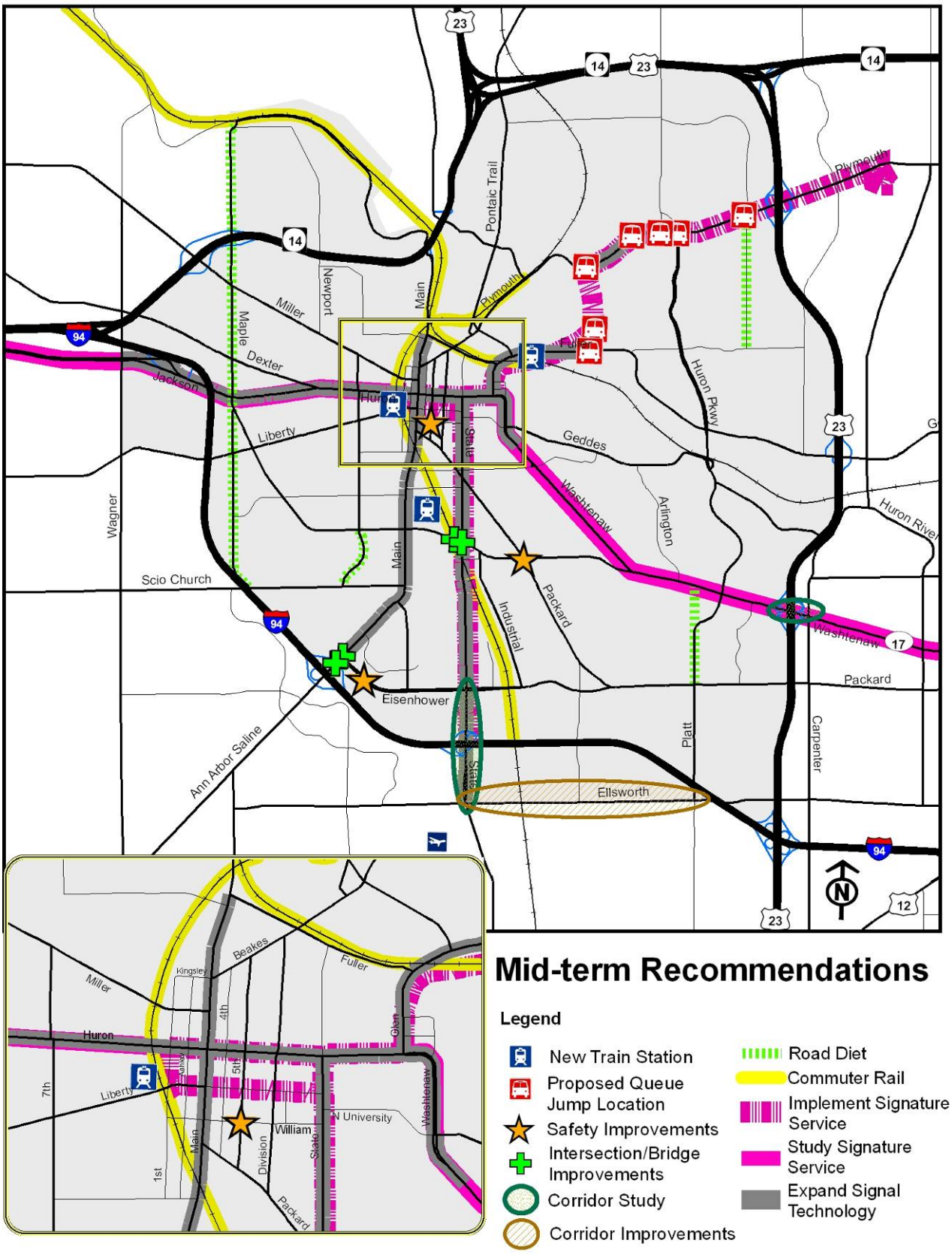


Table 6-7 outlines the other physical intersection improvements that are recommended in the mid-term. These include additional through and/or turn lanes. At this point, improved efficiency along the corridor will not be enough to counter traffic growth. It should be noted that intersection and corridor improvements are suggested based on the assumption that no effort is made to impact driver mode choice. Should vehicular drivers switch their method of travel, some of these improvements may not be needed.

Access Management

In line with the short-term recommendations for promoting access management in the city, continued development of access plans and implementation of the WCAMP recommendations is part of the incremental implementation process. A mid-term recommendation of this plan includes adding a line item in standard street improvement project budgets with specific funding for access-related improvements in and near the right-of-way. Incentivizing implementation by making funds available for voluntary compliance or improvement of access spacing and design as part of a street project is one proven method of speeding up the access management process.

Transit

A mid-term recommendation is to construct and operate the signature transit improvements on State Street and Plymouth-Fuller, assuming that the alternatives analysis was successful, and funding can be secured.

In addition, alternatives analysis studies should commence to analyze the potential for signature transit improvements on both the Washtenaw Avenue and Jackson Road/West Huron corridors. These two corridors have been identified as having the potential to support signature transit improvements. Both corridors have interchanges to the freeway system on the outer fringe of the city, connect to city activity centers, and are highly used radial corridors that are gateways to the city for visitors and commuters.

Transit improvements to other radial corridors should also be implemented even as improvements on the Plymouth/Fuller, State, and Washtenaw corridors continue. Stop amenities, including variable message boards and distinctive shelters, should be implemented on the South Main, Ann Arbor-Saline, Liberty, Jackson-West Huron, and Miller corridors. Improvements to amenities on these corridors will give the radial, high-frequency corridor service a distinctive look and feel that will promote transit service as a viable way for visitors and commuters to access destinations within the city. In coordination with the stop amenities, the priority radial corridors should also improve their service frequencies in order to reflect the higher quality service.

It is also anticipated that permanent stations will be necessary for both the WALLY and Ann Arbor to Detroit commuter rail services. It is recommended that two permanent stations be constructed during this time period to serve commuters, one on the west side of downtown Ann Arbor to serve WALLY commuters, and another near the Fuller/Maiden intersection to serve Ann Arbor to Detroit commuters. Once a final location for both stations is selected, AATA should consider operational changes to the Link to ensure that it serves the stations in a frequent manner, connects to the Blake Transit Center, and serves the areas with the most jobs in the downtown/UM core.

Land Use Policy

Implementing a successful multi-modal transportation system will rely heavily on guiding land use development in the public and private realm to support transportation investment. In the mid-term, this plan recommends continuing the short-term efforts with tools and policies that will encourage an increase in land use densities along enhanced transit corridors to at least 25-40 RE/AC and to at least 75 RE/AC in the downtown.

Another mid-term recommendation of this plan is the development a Form-Based Code for the Downtown and signature transit corridors to regulate form and character and establish build-to lines, to support transportation improvements citywide that connect into downtown.

In line with proposed increases in future land use intensity for select sites around the city, another mid-term recommendation is to evaluate a Transfer of Development Rights (TDR) program. Such a program could allow a transfer of land use maximum densities from sites around the city (or even outlying townships or land in the "greenbelt") to sites along enhanced transit corridors, further supporting the transportation investment and preventing increased density development farther away from the enhanced transit corridors.

Long Term (>10 Years) Recommendations

The long-term time period represents the time period of more than fifteen years in the future. There may be additional land use changes associated and Land Use Alternative #3 may be a reality. Thus, the transportation recommendations in this section are made with this future land use in mind.

During this future time period the densification of downtown and the channelization of development along designated corridors will result in a more balanced transportation system. Transit, bicycle, and pedestrian users will be on balance with auto users within the city. Recommendations within this section are made with the idea of all users being able to use any of the corridors within the city for their transportation needs. Table 3-3 details the recommendations for the long-term time period. Figure 3-5 illustrates these long-term recommendations.

Transit

During the long-term time period, the changes to transit service frequency, stop amenities, and land use should have taken effect to the point that both the Jackson/Huron and Washtenaw corridors should be able to support a signature transit investment. Implementation and operation of signature transit along these corridors should occur during the long-term time period.

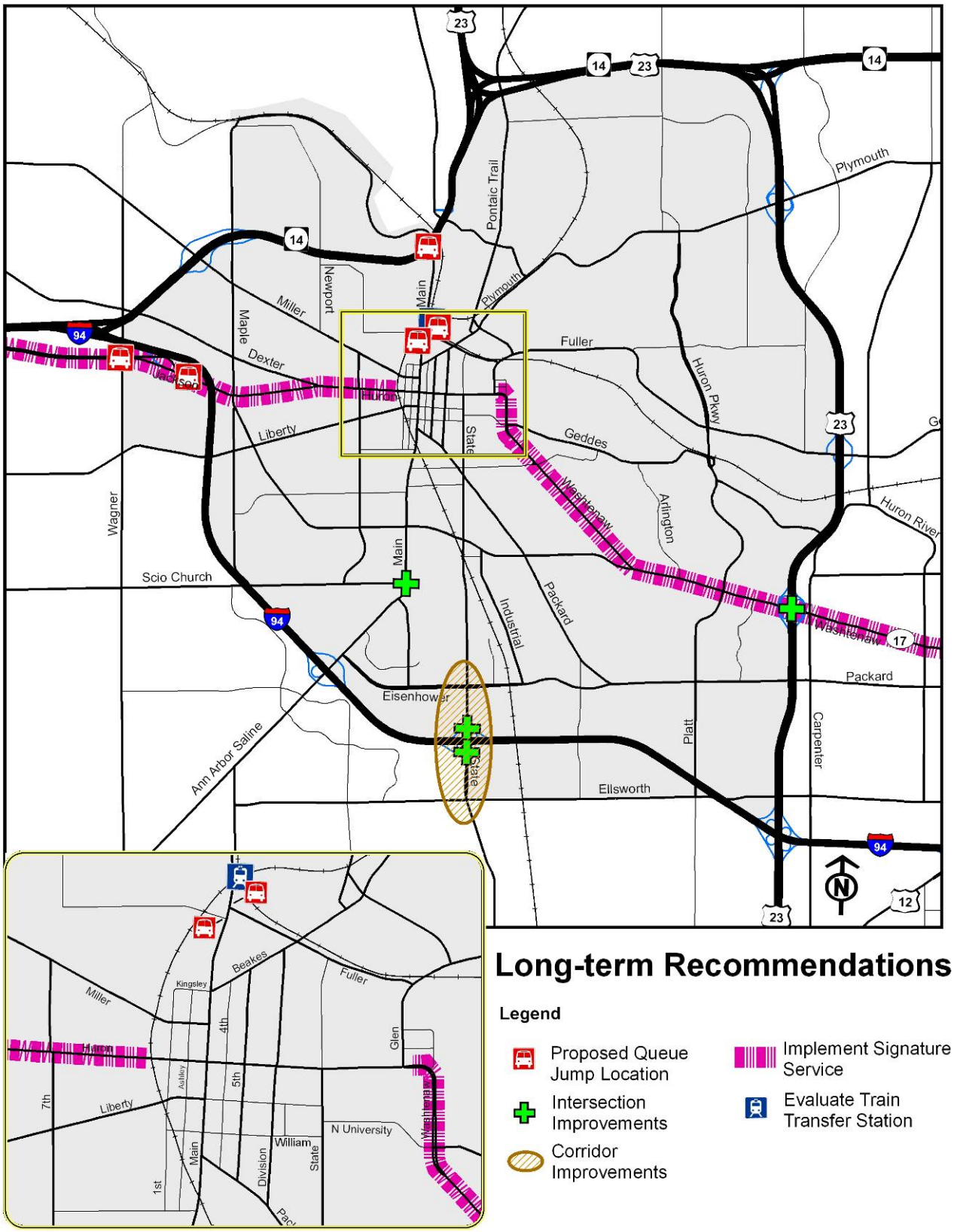
Also during the long-term time period it is anticipated that the Ann Arbor to Detroit commuter rail service should go from demonstration to a permanent service. It is not known what agency would operate the service or other important details of operation. However, this commuter service is important to Ann Arbor's overall vision as a regional employment center. Therefore, the city and AATA should support the efforts to develop this commuter rail as a permanent service and should coordinate wherever possible to provide public transportation links that ensure that commuters arriving in Ann Arbor are able to reach their final destination.

Table 3-3: Long-Term Recommendations

Long-Term Recommendations				
Improvement		**Location**	**Cost**	**Lead Agency**
Roadway Improvements				
1	Implement US-23/Washtenaw interchange reconfiguration study recommendation (Page 6-10)	US-23 / Washtenaw	$6,000,000	MDOT
2	Implement I-94/State Street interchange redesign study recommendation (Page 6-8)	I-94 / State Street	$4,000,000	MDOT
Intersection Improvements				
1	Construct a boulevard with indirect left turn lanes (Page 6-6)	State Street between Eisenhower Pkwy and Ellsworth Rd	$6,900,000	Ann Arbor
2	Add southbound right/through lane, add eastbound dual left-turn lane (Page 6-6)	Scio Church at S. Main	$58,000	Ann Arbor
Traveler Choices (Travel Demand Management)				
1	Continue supporting and expanding Citywide Travel Choices Coordinator (Page 2-2)	Citywide	$150,000 yearly	Ann Arbor
2	Expand real-time traveler information to website / mobile phones / radio by using SCOOT data and bus location	Citywide	$1,000,000	Ann Arbor
3	Provide a Mobility Center within Downtown that would house the City-wide Traveler Choices Coordinator and staff which would provide information on busses, commuter rail, and bicycle facilities. Staff would provide individual travel planning. The Mobility Center would also offer locker-rooms, showers, and indoor bicycle facilities for those enrolled in a program	Downtown	$50,000/year lease	Ann Arbor
4	Expand real-time traveler information at four arterial locations entering City that have signature transit built (Jackson / Plymouth / Washtenaw / State)	Citywide focus on 8 initial locations	$1,200,000	Ann Arbor
5	Research having a city-deck or special parking spaces for “Carpool Only”	Downtown	$10,000	Ann Arbor

Long-Term Recommendations				
Improvement		**Location**	**Cost**	**Lead Agency**
Access Management				
1	Continued implementation and development of corridor specific plans prior to street project design (Page 6-14)	Citywide	$200,000 yearly	Ann Arbor
2	Pursuit/establishment and expansion of funding sources to assist in construction of recommended modifications (Page 6-14)	Citywide	None – Internal Staff	Ann Arbor
Transit				
1	Construct and operate signature transit on Washtenaw and Jackson corridors (Page 6-22)	Jackson/Washtenaw	$51.1-136.4 million (capital) $2.4-2.8 million (operating)	AATA
2	Support development of permanent Ann Arbor to Detroit commuter rail service (Page 6-28)	Norfolk Southern RR	None	Ann Arbor
3	Evaluate Commuter Train Transfer Station where north-south (WALLY) and east-west (Ann Arbor-Detroti) lines cross	North of Downtown	$100,000	Ann Arbor
Park and Ride				
1	Evaluate and construct new Washtenaw Park and Ride Interceptor Parking Deck as part of US-23/Washtenaw interchange reconfiguration (Page 6-26)	US-23/Washtenaw interchange	$10,000,000	Ann Arbor
Non-Motorized				
1	Implement recommendations from non-motorized plan on low-priority corridors	Newport, Pontiac, Stone School, Nixon, E. Huron River Drive	$500,000 yearly	Ann Arbor
Land Use Policy				
1	Increase density along enhanced transit corridors to an average of at least 40 RE/AC and average of at least 100 RE/AC in the downtown via development reviews and updates of planning documents (Page 2-3)	Select locations around the city	None – Internal City Staff	Ann Arbor
2	Evaluate a Transfer of Development Rights (TDR) program which would allow a transfer of land use maximum densities from sites around the city to sites along enhanced transit corridors	Citywide	None - Internal City Staff	Ann Arbor

Figure 3-5: Long-term Recommendations



Another uncertainty related to the proposed commuter rail service and the existing train station located on Depot Street in Ann Arbor. Both demonstration and permanent commuter rail service to Detroit presumably would use the Norfolk Southern alignment through Ann Arbor and could use the existing train station. Potential north-south commuter rail service on the Ann Arbor Railroad alignment would not have access to the Depot Street station, and would generate the need to construct a new commuter rail station.

Passengers desiring to use both services would not be able to easily transfer between corridors unless changes are made to the current track layout and connections. Such changes would require extensive coordination with the private railroads and could be costly and difficult. It is too early in the process of developing these services, but assuming that both services operate at some time in the future, the question of connecting potentially transferring passengers will need to be resolved, possibly with a bus or fixed guideway transfer connection or with the development of connecting tracks, a common station and new rail facilities. It is recommended that coordination between these two commuter rail services and their existing or potential train stations will be needed in the long term time period in order to efficiently promote commuter rail within the city of Ann Arbor.

Land Use Policy

In the long-term, this plan recommends continuing the shorter-term efforts with tools and policies that will strongly encourage and regulate an increase in land use densities along enhanced transit corridors to at least 40 RE/AC and to at least 100 RE/AC in the downtown.

Another long-term recommendation that builds on the short- and mid-term recommendations is the development a Form-Based Code for the enhanced transit corridors, to regulate form and character and establish build-to lines that will support increasing density and continued transportation improvements along the corridors.

The table below is organized by recommendation and time frame and establishes improvements, locations, lead agencies, and costs (where appropriate) associated with implementing the recommendations.

Cost Estimation

Given these recommendations, a preliminary cost estimate was determined for those recommendations that would require significant funding. This section is broken into costs for transit and intersection/roadway improvements.

Transit Cost Estimate

Conceptual capital and operating-maintenance cost estimates were prepared for each of the transit recommendations, including signature transit, improved bus service, queue jump facilities, and stop amenities. Cost estimating is particularly challenging at this time due to the rapidly rising costs of several components of costs. Capital cost estimates are complicated by the rising cost of concrete and steel, which have risen faster than inflation for much of the past decade. Operating costs have also risen rapidly during this decade due to the rising costs of employee fringe benefits. In addition, both capital and operating costs are affected by the rising price of fuel. This problem has been ameliorated somewhat by using as up to date information as possible, both on the costs of developing similar systems nationally, and information on the current costs of operating the AATA system. Tables 3-4 and 3-5 outline the estimated capital investment, operating, and maintenance costs for the recommended transit improvements. Detailed calculations for each recommendation are provided in Appendix D.

Table 3-4: Signature Transit Estimated Capital, Operating, and Maintenance Costs

Corridor	Length (Miles)	BRT		Streetcar	
		Capital Cost (k)	Operations/ Maintenance (k)	Capital Cost (k)	Operations/ Maintenance (k)
Plymouth/Fuller	5.35	$44,100	$1,483	$117,700	$2,216
Washtenaw	3.7	$30,500	$1,157	$81,400	$1,708
State	4.25	$35,100	$1,319	$93,500	$1,806
Jackson/W. Huron	2.5	$20,600	$1,107	$55,000	$1,011
Total	**15.8**	**$130,300**	**$5,066**	**$347,600**	**$6,741**

Table 3-5: Other Transit Improvement Estimated Implementation and Operational Costs

Improvement	Corridor	Quantity	Cost (k) Each	Total Cost (k)
Increased Bus Frequency on Priority Corridors	Washtenaw	3	$124	$373
	Ann Arbor-Saline	2		$249
	Jackson/Dexter	1		$124
	Miller/Liberty	2		$249
Queue Jump Facilities	Plymouth	7		$7,000
	Washtenaw	3		$3,000
	State	3		$3,000
	S. Main	3		$3,000
	N. Main	2		$2,000
	Jackson	4		$4,000
Stop Amenities for Priority Corridors	Route 2 - Plymouth	See Page D-17 for cost breakdown		$105
	Route 4 - Washtenaw			$123
	Route 36 – State / Wolverine Tower			$135
	Route 16 - S. Main / Ann Arbor - Saline			$98
	Route 9 – Jackson / Dexter			$68
	Route 18 – Miller Road			$105
Signal Priority Equipment	On-board vehicle	48	$7	$336
	Signal improvements	22	$30	$660

Three Park and Ride interceptor lots are proposed for three of the four signature transit corridors. These Park and Ride lots would fill out AATA's inner Park and Ride system and facilitate the movement of commuters and visitors to high-use activity centers in Ann Arbor's core. Unlike the other costs, Park and Ride lots are not assumed to be included in the estimated capital costs of signature transit corridors, so these costs could be assumed to be additional to the costs presented for those corridors.

The plan assumes that 500 spaces will be needed in order to promote the easy movement of commuters to the Ann Arbor core. Of the corridors identified for Park and Ride improvements, State Street currently has a large Park and Ride lot (with 550 spaces), thereby not needing any expansion. Both Jackson Road and Ann Arbor-Saline Road each would need a new 500-space

lot. Both Plymouth Road and Arborland (Washtenaw Avenue at US-23) have existing Park and Ride lots, with 100 and 220 spaces respectively, so they each would need additional spaces to reach the level of 500 spaces in each corridor.

The estimate for surface parking is $3,000 per space. Traditionally, one-acre parking lots have 100 spaces, which gives the number of acres needed for each of the lots and the associated right-of-way cost of each. This plan assumes no structured parking would be required. The table below summarizes the cost involved in new or expanded Park and Ride lots for the Plymouth, Washtenaw, Ann Arbor-Saline and Jackson corridors. Additional studies should be conducted on whether a parking deck should be built instead of expanding a park and ride lot.

Table 3-6: Cost Estimate for Proposed Park and Ride Lots

Proposed Lots	Proposed spaces	ROW needed	Total Estimated Cost (2007 dollars)
Plymouth/Fuller	400	4 acres	$1,200,000
Ann Arbor-Saline	500	5 acres	$ 1,500,000
Jackson Road	500	5 acres	$1,500,000
Washtenaw	280	2.8 acres	$840,000
Estimated Park and Ride Cost including ROW			**$5,040,000**

A total of $5.0 million dollars would be needed for new Park and Ride lots at the ends of each of these corridors.

Intersection/Corridor Improvement Cost Estimate

Intersection/corridor improvements such as additional lanes, signalization, and interchange improvement have been recommended. Cost estimates have been performed for each intersection/corridor needing improvement based on the following assumptions.

- $800,000 per lane mile for additional lanes
- $4.9 million per mile for conversion to a boulevard with indirect lefts
- $100/square foot for bridge improvements
- $4.0 million for single point urban interchange construction
- $100,000 per signal for intersection signalization

Total estimated cost to implement all recommended intersection/corridor improvements is $16.65 million, not including right-of-way acquisition costs. Costs are detailed below:

- Ann Arbor-Saline at Eisenhower Parkway - $128,000
- Ann Arbor-Saline at I-94, including bridge work - $1.49 million
- Main Street at Depot Street - $50,000
- Main Street at Scio Church Road - $58,000
- State Street from Eisenhower Parkway to Ellsworth Road boulevard construction - $6.9 million
- Eisenhower Parkway at Northbrook Place - $100,000
- State at I-94 SPUI - $4 million
- Eisenhower Parkway at Plaza Drive - $100,000
- Fletcher Street at Huron Street - $100,000
- Platt Road at Washtenaw Avenue - $50,000 - $100,000
- State Street at South University Avenue $100,000
- Ellsworth between State Road to east of Platt Road - $3,520,000

Cost Estimate Conclusions

A number of additional planning studies would be required to determine the precise improvements that will best suit the needs of Ann Arbor and the various travel corridors, as well as the timing of their implementation. The cost estimates found here have many undefined variables, the biggest of which is the mode of transit for the proposed Signature Transit corridors. Probably the largest unknown concerning these costs, however, is the future cost of the materials and labor that will be required to bring them to completion. Therefore, the cost of the signature transit is not included in the cost estimate below. Table 3-7 below summarizes the cost by time frame as well as agency.

Table 3-7: Cost Estimate by Time Frame*

Time Frame	City of Ann Arbor	AATA**	MDOT	Total Cost
Short-Term (2008-2013)	$14,055,000	$14,319,500	$30,000	$28,404,500
Mid-Term (2013-2023)	$59,565,000	$29,221,000	$1,843,000	$90,629,000
Long-Term (2023-2030)	$28,268,000	$11,165,000	$10,000,000	$49,433,000
Total Cost	$101,888,000	$54,705,500	$11,873,000	$168,466,500

**All Costs are in 2007 dollars*

***Costs do not include Signature Transit Capitol and Operating Costs*

Funding

Table 3-8 outlines potential funding sources for transportation improvements in Ann Arbor. More detailed description of the background, funding sources, and eligible uses for the following funding sources related to Federal, State, and Local Programs can be found in Appendix D.

Table 3-8: Potential Funding Sources

FEDERAL PROGRAMS	
• Federal Highway Trust Fund • National Highway System • Surface Transportation Program • Transportation, Community and System Preservation Program • Congestion Mitigation and Air Quality Improvement Program • Highway Safety Improvement Program (HSIP) • New Starts • Rail and Fixed Guideway Modernization • Bus and Bus Facilities • Transportation for Elderly Persons and Persons with Disabilities	• Job Access and Reverse Commute Program • New Freedom Program • Alternatives Analysis • Safe Routes to School • Transportation Enhancement Program • Intelligent Transportation Systems Program • Railroad Rehabilitation & Improvement Financing • Federal High Priority Funds • The Energy Efficiency and Conservation Block Grant (EECBG)
STATE OF MICHIGAN PROGRAMS	
• Michigan Transportation Fund • State Trunkline Fund	• Transportation Economic Development Fund • Local Bridge Program
LOCAL PROGRAMS	
• Dedicated Road Millages • Special Assessments	• Downtown Development Authority • Corridor Improvement Authority
FINANCING	
• Grant Anticipation Revenue Vehicles (GARVEES) • Transportation Infrastructure Finance and Innovation Act of 1998	• State Infrastructure Bank Program • Local Road/Railroad Grade Separation Loan Program • Bonds
COST REDUCTION	
• Advance construction	• Public / Private Partnerships

Transit Funding

According to the AATA Transit System Development Report completed in January 2007, AATA's existing transit service is funded through a combination of local taxes (approximately 40%), state operating assistance (approximately 33%), passenger fares (approximately 15%) and federal operating assistance (approximately 9%). The Transit System Development Report notes that because the bulk of funding for AATA comes from local sources, expansion of the system would require new local revenue sources. Also state operating assistance may not stay the same, so the additional funding would need to be pursued.

The transit recommendations found in this plan can be divided into two funding categories – capital costs associated with infrastructure improvements, and operating and maintenance costs associated with the new service recommendations.

Capital Costs

The most significant transit recommendations in this plan are related to the study, development and operation of signature/high-quality transit service on a handful of priority corridors throughout the city. The development of a signature transit improvement would likely go through the Federal Transit Administration (FTA) Section 5309 New Starts process, which currently requires that each corridor undergo a planning and environmental study called an Alternatives Analysis. In this process, a problem statement is developed for the corridor and a series of alternatives are considered to address the transit needs of the corridor. The process culminates with the selection of a locally preferred alternative. Ann Arbor is initiating this process with a study for the Plymouth/Fuller and State Corridors which is expected to begin in the second half of 2008.

The outcome of such a study could be the recommendation to develop signature transit (rail or bus rapid transit), or the selection of a low-cost or no-build alternative. To move forward in the New Starts process, a signature/high quality transit recommendation must be approved by the local MPO and meet certain FTA standards (including its current cost effectiveness criteria). The region also must have a feasible plan for funding from local and state sources the non-Federal share of the capital development costs of the signature transit improvements and to fund the operating and maintenance costs of the project in addition to continuing to fund existing transit services (operating and maintenance costs are not covered by FTA funding).

Theoretically up to 80% of the capital investment can be provided by Federal sources. However, the New Starts program is highly competitive, and in recent years most cities receiving grants under the program have received around 50% of the capital cost, with the remainder of the funds coming from local and state sources. As a Federal grant program, New Starts procedures and guidance relating to Capital Cost estimating can be found on FTA's website (http://www.fta.dot.gov/planning/newstarts/planning_environment_213.html).

The Federal New Starts program is administered by the FTA, but it is a financial program, and could change substantially under a new Congress and Presidential administration due in 2009.

Park and Ride lots, queue jump facilities, and other corridor amenity recommendations on a less than full corridor basis might be ineligible for funding under the New Starts program. These improvements would require funding from other Federal programs (such as Enhancement or CMAQ grants) and from state and local sources.

Operating Costs

Service improvements to several corridors, as well as the operating and maintenance costs associated with signature transit improvements falls under funding for service costs. As noted above, current AATA operating costs are covered by a combination of local, state, and Federal sources. Additional service would require an increase in one or more of the funding sources listed previously.

For AATA fixed-route bus service improvements, currently about 15% of the cost can be recovered by fares while the State of Michigan funds 33% of the total fixed-route cost. Thus, 48% of any fixed-route service introduced can be accounted for currently, however, State of

Michigan funding does not remain fixed. The other 52% of the operating cost would need to come from an additional source.

For signature transit improvements, further study – perhaps as part of the alternatives analysis process – will be needed to identify a funding strategy. It is assumed that the State of Michigan would supply a portion of the operating cost as it does now for inter-city Amtrak costs. Additionally, because several of the proposed signature transit corridors would overlap with service provided by University of Michigan Parking and Transportation Services (UM PTS), operating costs for a signature transit service may potentially seek out funding from UM PTS as a replacement for current shuttle service. However, it is beyond the scope of this document to suggest that the signature transit service would replace the current shuttle service.

Therefore, it is unknown what combination of local, state and Federal sources would be needed for signature transit service. The issue should be addressed in finer detail during the Alternatives Analysis process.

Conclusion

This chapter reviewed the overall recommendations broken down by short-, mid-, and long-term timeframes. Figure 3-6 illustrates all the recommendations resulting from this plan. The process to determine these recommendations utilized three different future land uses and found that some recommendations would be needed regardless to the land use while others would be needed with denser land uses in the City. As stated earlier, land use and transportation are tied together and both affect each other in significant ways. This plan recommends changes to policy that would affect land use and it was the goal of this document that the plan be responsive to land use changes.

Another goal of this plan was to protect and enhance the natural environment and energy sources. In determining recommendations for this plan, there were two major objectives: minimize roadway widening and encourage shift in modes from the automobile. Several ways to meet these objectives are to maximize current efficiency of the roadways and provide other transportation modes to meet future demand. Recommendations from these plans to meet these objectives are to continue the implementation of the SCOOT system and enhance the transit system. These two recommendations will increase efficiency of the roadway system and potentially shift trips from automobile to transit. These will essentially reduce CO emissions by reducing congestion and removing automobiles.

Table 3-9 outlines the estimated potential reduction in CO emissions gained by implementing transit and coordinated signal system (SCOOT) recommendations from this study. By reducing congestion and moving some trips to alternate modes, these recommendations make it possible to reduce vehicle miles of travel (VMT) by 13-15% and the vehicle hours of travel (VHT) by 19-22% depending on the land use alternative. Because vehicles spend less time on the road, and less time in congestion, emissions are expected to be reduced 5-6%. These calculations are a rough estimate, based on the travel time and emissions relationship found through MDOT signal optimization projects. Emissions calculations depend on many variables, such as vehicle type, vehicle age, acceleration rates, climate, altitude, etc. However, it is safe to say that removing vehicles from the road and reducing the amount of time they spend idling in congestion will have a positive impact on emissions in the Ann Arbor area.

Table 3-9: Estimated Reduction in VHT and CO Emissions by Land Use and Recommendation

Land Use Alternative		Vehicle Miles of Travel	Vehicle Hours of Travel (veh*hr)	CO (lbs/day)
2005		1,529,938	46,968	41,873
2030 Land Use Alternative #1	Doing Nothing	1,887,652	63,035	45,201
	With Recommendations	1,642,455	50,830	42,767
	Percent Reduction	***13%***	***19%***	***5%***
2030 Land Use Alternative #2	Doing Nothing	1,962,114	66,962	45,885
	With Recommendations	1,690294	53,560	43,358
	Percent Reduction	***14%***	***20%***	***5%***
2030 Land Use Alternative #3	Doing Nothing	2,027,143	70,633	46,488
	With Recommendations	1,728,780	55,182	43,696
	Percent Reduction	***15%***	***22%***	***6%***

There were eight goals listed in Chapter 2 of this report ranging from providing access and mobility to all people, protecting the environment, safety, public involvement, and incorporating land use into the transportation decision process. These eight goals guided the development of all the recommendations presented in this Plan and none of these recommendations contradict the goals presented in this Plan.

Figure 3-6: Final Recommendations