

“A” MINOR ARTERIAL SYSTEM EVALUATION FINAL REPORT

PREPARED FOR THE METROPOLITAN COUNCIL AND
TRANSPORTATION ADVISORY BOARD



“A” Minor Arterial Augmentor, Bottineau Boulevard (CSAH 81) in Robbinsdale



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Study and Report Overview

The purpose of the “A” Minor Arterial System Evaluation Study was to evaluate if the Twin Cities Metropolitan Area’s “A” Minor Arterial system has and continues to successfully supplement the Principal Arterial system. In doing so, the study considered if the original purpose of the “A” Minor Arterial system aligns with regional policy in 2012. It also examined the system’s funding – federal, state, and local – to identify the role of federal funding, including those funds awarded through the Regional Solicitation Process. The study has sought to identify the changes needed to make the “A” Minor Arterial system, its purpose, and regional policies more consistent. The recommended changes are identified and discussed in this report.

Due to the delayed passage of Moving Ahead for Progress in the 21st Century Act (MAP-21), the study did not have time to identify and analyze the implications of the new federal transportation funding bill. The federal transportation funding authorization bill passed in mid-2012. While the “A” Minor Arterial System Evaluation Study was intended to consider the impact of the federal reauthorization on the region’s Minor Arterial system, the timing of this study and passage of the two-year bill did not allow for this kind of review. As such, the results of this study will help inform future assessments of the implications of MAP-21 on the regional transportation system.

The study was guided by a Project Management Team (PMT) and a Technical Steering Committee (TSC) composed of staff representatives from MnDOT, Transportation Advisory Board (TAB), the TAB’s Technical Advisory Committee (TAC), Metropolitan Council, the region’s seven counties, and five of the ten cities on the TAC. The PMT and TSC helped guide the study process and approach and helped develop the study’s conclusions and recommendations. A consulting team consisting of SRF Consulting Group, Inc. and Cambridge Systematics performed much of the study. The study benefitted greatly from the time and thoughts shared by the PMT, TSC, and consultants.

This report is the fourth and final document prepared for the “A” Minor Arterial System Evaluation Study. It contains the study conclusions, recommendations, and key findings which are based on results recorded in three Technical Memoranda documenting the “A” Minor Arterial system’s History, System Assessment, and Funding Assessment. Copies of the Technical Memoranda are available from the Metropolitan Council.

“A” Minor Arterials – 1990 to 2012

In 1989, the Twin Cities Metropolitan Area concluded in its Transportation Policy Plan (TPP) that the funding needed to expand the Principal Arterial system would likely not be available. The TPP stated that future increases in travel demand should be met by MnDOT using demand management on the Principal Arterial system and by MnDOT, counties, and cities working together to provide an adequate regional Minor Arterial roadway system. To support the development and enhancement of the Minor Arterial system, the 1989 TPP Work Program recommended a study of the Minor Arterial system be carried out by TAB. The TAB appointed a task force to complete the study and the Minor Arterial Study was finalized in December 1990. The study report summarized the issues facing the Minor Arterial system, stated the purpose of the Minor Arterial system is to supplement the Principal Arterial system, introduced the concept of “A” Minor Arterials as the region’s most important Minor Arterials, and recommended a process for allocating federal funds to the “A” Minor Arterials.

With the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the region chose to allocate a portion of its federal urban guarantee funds to the “A” Minor Arterial system. Federal funding for the region’s “A” Minor Arterials was maintained by the two subsequent federal transportation bills, the 1998 Transportation Equity Act for the 21st Century (TEA-21) and 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU). These funding decisions resulted in a Regional Solicitation Process that has competitively awarded federal funding to transportation improvement projects generally every two years since its inception more than 20 years ago. Between 1993 and 2009, the Regional Solicitation Process administered by the TAB to the Metropolitan Council in cooperation with its local partners has resulted in the award of federal funding to over 100 “A” Minor Arterial projects with an estimated construction value of over \$500 million (not adjusted for inflation). More information on the history of “A” Minor Arterials and the Regional Solicitation is available in Technical Memorandum 1.

Study Conclusions and Recommendations

The study's conclusions and recommendations are presented in three categories:

1. "A" Minor Arterial System And Policy Conclusions and Recommendations
2. Regional Solicitation Conclusions and Recommendations
3. Other Conclusions and Recommendations

These conclusions and recommendations show that the region's "A" Minor Arterial system has successfully supplemented the Principal Arterial system, also called the Metropolitan Highway System. In addition, its original purpose continues to align with current regional policy, and federal funding, including monies awarded through the Regional Solicitation, plays a small, but important part in developing and enhancing the system. The conclusions and recommendations identify the changes needed to allow the "A" Minor Arterial system to continue to fulfill this important role in the Regional Highway System.



"A" Minor Arterial Expanders, Radio Drive (CSAH 13) at Bailey Road (CSAH 18) in Woodbury

“A” Minor Arterial System and Policy Conclusions and Recommendations

1. The “A” Minor Arterial system has and continues to successfully supplement the Principal Arterial system.

Recommendation:

The Metropolitan Council and TAB should continue to recognize the importance of the “A” Minor Arterial system and its strong connection to regional goals and policy and clarify its purpose in policy.

Principal Arterials and “A” Minor Arterials make up less than 25 percent of the region’s lane-miles, but carry nearly 75 percent of the vehicle-miles traveled in 2010.

The Transportation Policy Plan defines the Regional Highway System as principal and “A” minor arterials. The “A” Minor Arterial system plays a critical role in the Regional Highway System within the Twin Cities Metropolitan Area by supplementing the Metropolitan Highway System (i.e., the Principal Arterial network) and providing mobility options in parts of the region that are not well-served by the Principal Arterial/Metropolitan Highway System. It provides access to many of the region’s job centers and connects rural centers to each other and to the Metropolitan Highway System.

As shown in Table 1, the “A” Minor Arterial system is well used: it accounts for 13 percent of highway lane-miles in the seven-county Twin Cities Metropolitan Area, yet it carries 26 percent of the 2010 daily vehicle-miles travelled (VMT). Together with the Principal Arterial system, the Regional Highway System (Principal Arterial and “A” Minor Arterials) make up less than 25 percent of the region’s lane-miles and carry a large majority -- nearly 75 percent -- of the miles our region’s vehicles traveled in 2010.

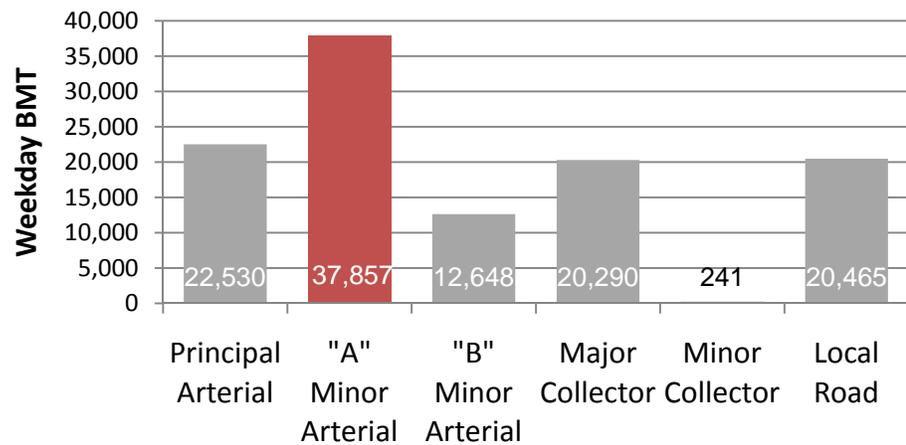
Table 1: Share of System Lane-Miles and VMT

Functional Classification	% of 2011 Lane-Miles	% of 2010 Daily VMT
Principal Arterial	9	48
“A” Minor Arterial	13	26
“B” Minor Arterial	3	5
Major Collector	8	10
Minor Collector	2	1
Local Road	65	10
TOTAL	100	100

Principal Arterials and “A” Minor Arterials carry 53 percent of the region’s bus-miles travelled.

Study results also show the “A” Minor Arterial system carries the most in-service bus-miles travelled (BMT) – 33 percent of the total BMT – highlighting the important role the “A” Minor Arterial system plays in supporting bus transit (see Figure 1). Collectively, the Regional Highway System (Principal Arterials and “A” Minor Arterials) carry 53 percent of the region’s BMT.

Figure 1: Average Weekday BMT by Functional Classification (2010)



The “A” Minor Arterial system aligns with regional goals and policies.

These varied roles of the “A” Minor Arterial system align with regional goals and policies. The system actively supports Regional Development Framework policies to:

1. Accommodate growth in a flexible, connected and efficient manner.
2. Plan and invest in multi-modal transportation choices.
3. Encourage improved access to jobs and opportunities.

The role of the “A” Minor Arterial system in implementing these development policies is described in Transportation Policy Plan (2010) policies 9 (Highway Planning), 11 (Highway System Management and Improvements), and 18 (Providing Pedestrian and Bicycle Travel Systems). The system also serves as the foundation for many of the TPP’s Transit policies since, as previously mentioned, much of the region’s transit system – from rail stations to bus to ridesharing – makes use of the “A” Minor Arterial system for accessing or providing the services.

Thrive MSP 2040 should define the Regional Highway System and future updates of the Transportation Policy Plan should more fully explain the purpose of the “A” Minor Arterial system and more clearly articulate the difference between “A” and “B” Minor Arterials.

While the study finds the “A” Minor Arterial system is fulfilling its intended role and the role remains consistent with regional policy, it also found opportunities to provide clarity about the system. For example, Thrive MSP 2040, the forthcoming update of the metropolitan development guide, should define the Regional Highway System, and future updates of the Transportation Policy Plan should more fully explain the purpose of the “A” Minor Arterial system and more clearly articulate the difference between “A” and “B” Minor Arterials. For example, “B” Minor Arterials carry more trips at longer distances like “A” minor arterials, but generally have more direct access to property. This guidance will help to provide rationale for state and local agencies to make decisions related to the “A” Minor Arterial system that are consistent with its stated purpose.

Regional Policy for “A” Minor Arterials

The 2030 Regional Development Framework and 2030 Transportation Policy Plan establish regional policy for the “A” Minor Arterial system. Policy 2 of the 2030 Regional Development Framework directs the region to plan and invest in multi-modal transportation choices, based on the full range of costs and benefits, to slow the growth of congestion and serve the region’s economic needs. The policy’s supporting strategies include encouraging local governments to implement a system of fully interconnected arterial streets, which includes “A” Minor Arterials.

The 2030 Transportation Policy Plan includes three policies that speak to “A” Minor Arterials and supplement the direction set in the Regional Development Framework.

Policy 9: Highway Planning – The Council, Mn/DOT, and local governments will plan the Metropolitan and Regional Highway Systems and local roads to provide a cost-effective, multimodal and safe roadway system that reflects the needs of a growing population and economy.

Strategy 9e. Interconnected Roadway Network: Local and county governments shall plan a system of multimodal interconnected collector roads and minor arterials to serve short and medium-length trips.

Policy 11: Highway System Management and Improvements – The Metropolitan Highway System and “A” minor arterial system will be managed and improved to provide for maximum person throughput, safety and mobility using existing facility capacity, pavement and right-of-way where feasible.

Strategy 11e. Access Management: State, county and local governments will manage access to the Regional Highway System. The capacity, safety, and utility of principal and “A” minor arterials are dictated in large part by how access to these roadways is provided and managed. Managing the location and design and new or reconstructed street and driveway connections to these arterials is a key strategy to preserve the existing capacity and enhance the safety of these roadways. Managing access consistently throughout the system will require a cooperative effort among Mn/DOT, counties, cities and townships.

Policy 18: Providing Pedestrian and Bicycle Travel Systems – The Council, state, and local units of government will support efforts to increase the share of trips made by bicycling and walking and develop and maintain efficient, safe and appealing pedestrian and bicycle transportation systems.

Strategy 18e. Complete Streets: Local and state agencies should implement a multimodal roadway system and should explicitly consider providing facilities for pedestrians and bicyclists in the design and planning stage of principal or minor arterial road construction and reconstruction projects with special emphasis placed on travel barrier removal and safety for bicyclists and pedestrians in the travel corridor.

2. The four types of “A” Minor Arterials have allowed the region to build the system sensitive to established policy and physical context.

Recommendation:

The Metropolitan Council and TAB should maintain four types of “A” Minor Arterials and update their definitions in policy, including revisiting the definitions of Developed and Developing areas as part of Thrive MSP 2040 and updating the “A” Minor Arterial definitions as part of the 2014 update of the Transportation Policy Plan update.

Each type of “A” Minor Arterial is generally aligned with its physical context and intended regional development planning area.

The four types of “A” Minor Arterials are defined in 2030 TPP (2010) Appendices A (Land Transportation Glossary) and D (Functional Classification Criteria and Characteristics and MnDOT Access Guidance). These definitions help to define the intended function of the “A” Minor system as they support adjacent Principal Arterials within different physical contexts and stages of development throughout the region.

The network is well distributed throughout the seven-county Twin Cities Metropolitan Area.

The study finds that each type of “A” Minor Arterial is generally aligned with its physical context and intended regional development planning area and that the network is well distributed throughout the seven-county Twin Cities Metropolitan Area (see Figure 2). For example, Connectors are primarily targeted for rural areas, but can extend into developed or developing areas. As shown in Figure 3, the actual location of Connectors fits this description. Phone interviews with agencies conducted as part of this study also found the characteristics and objectives of the four types of “A” Minor Arterials are well understood by regional partners and are reflected in their planning practices, operational strategies, and approach to capital improvements. And the four types of “A” Minor Arterials give policy and funding flexibility to the region. For example, Reliever routes, which run parallel to key Principal Arterials and supplement them during rush hours, may be treated differently from Connector routes which act more as main highways that connect rural centers to each other and to the Metropolitan Highway (Principal Arterial) System.

The four types of “A” Minor Arterials are well understood by regional partners.

Augmentor and Expander definitions should be reviewed to consider development changes since the types were defined in the early 1990s.

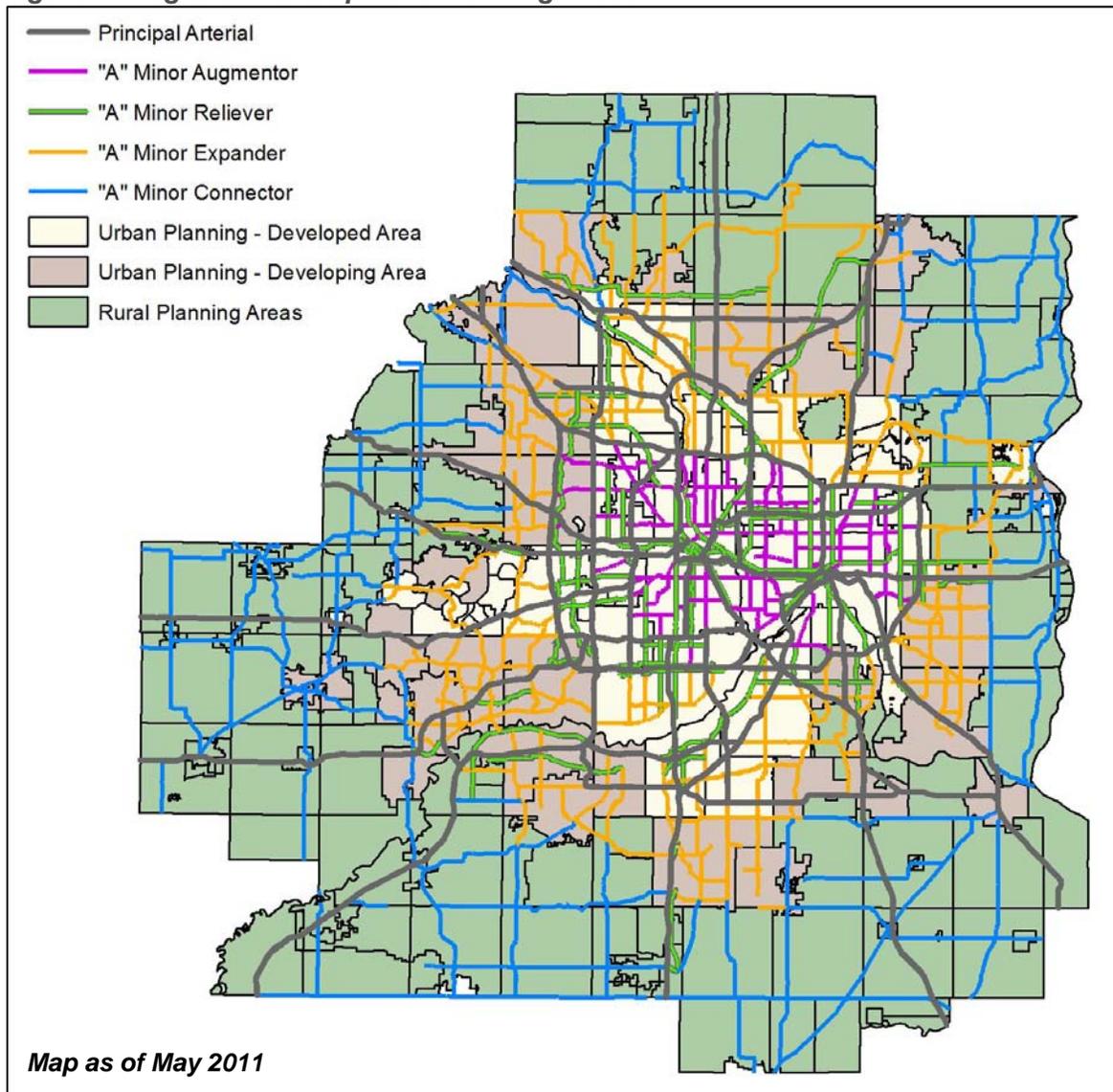
The study found areas where the definitions of the four types of “A” Minor Arterials are not perfect, but the study also finds the four types generally represent the historic development patterns and physical contexts for the roads that should be acknowledged. For example, the physical context and characteristics of an “A” Minor Arterial in Minneapolis or Saint Paul will differ significantly from one in Bloomington, Eagan, or Woodbury and again from one in Ham Lake, Norwood Young America, or Credit River Township.

The study finds the definitions of the four types of “A” Minor Arterials should be reviewed and updated, as necessary, in the next update of the Transportation Policy Plan. For example, the Augmentor and Expander definitions should be reviewed to consider development changes since the types were defined in the early 1990s. The definitions in the 2030 TPP (2010) reference I-494 and I-694 as the geographic boundary differentiating Augmentors and Expanders. Augmentors were introduced to serve the fully developed area where principal arterials were not in all cases sufficient relative to the density of development and could not be added. In 1990 this kind of fully developed area was located between I-494 and I-694, which is reflected in the TPP definitions of Augmentor and Expander. In 2011, the region shows the urban developed area beyond I-494 and I-694 with 24 percent of Expanders located in developed areas beyond I-494 and I-694. The Metropolitan Council and TAB should clarify whether the Expander definition should include developed areas beyond I-494/694 or the Augmentor definition should include Minor Arterials beyond I-494/694.



An “A” Minor Arterial Augmentor, Lake Street (CSAH 3) in Minneapolis

Figure 2: Regional Development Planning Areas



Summary of Definitions from 2030 Transportation Policy Plan Appendices A and D (Adopted Nov 2010) and 2011 Regional Solicitation Materials

Augmentors substitute for principal arterials not built between I-494 and I-694. Because the principal arterial system in this area is not in all cases sufficient relative to the density of development, improvements solicited in 2011 for future federal funding were intended to add, enhance, or preserve people-moving capacity and safety, and to provide for alternative modes.

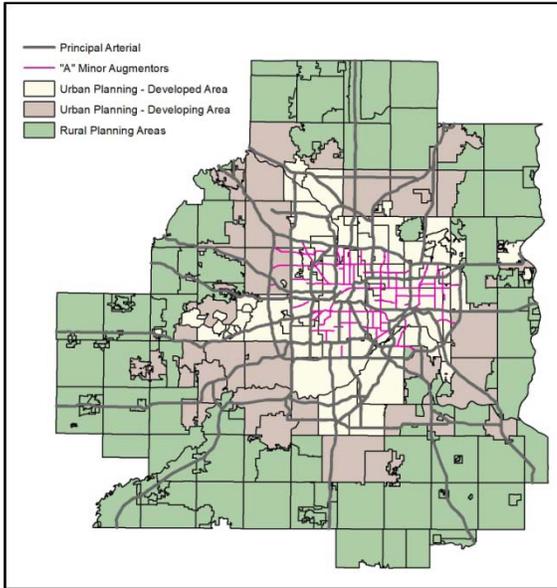
Relievers provide direct relief for congested principal arterials in developed and developing areas. Improvements solicited in 2011 for future federal funding were intended to add people moving capacity, improve safety, and provide for alternative modes.

Expanders prepare or provide for safe travel in developing areas beyond I-494 and I-694. Improvements solicited in 2011 for future federal funding were intended to build new or expand roadway capacity, improve safety, and provide for alternative modes.

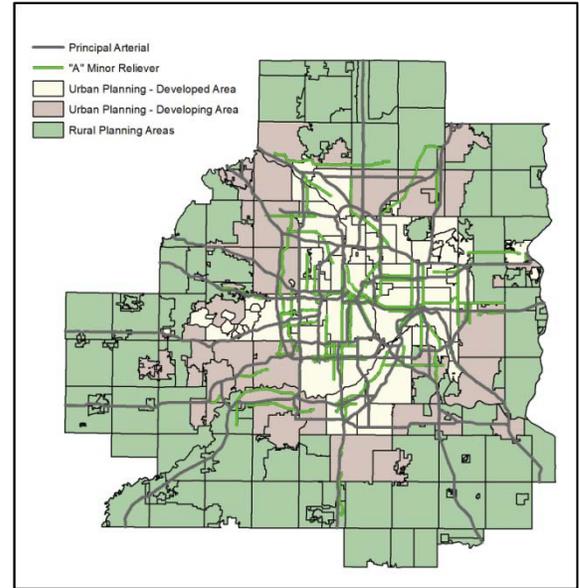
Connectors connect rural centers to each other and to large urban areas in rural and urban transition areas beyond the urban developing area. Improvements solicited in 2011 for future federal funding were intended to improve horizontal and vertical alignments, eliminate weight restrictions, better manage access, improve safety, and provide for alternative modes.

Figure 3: "A" Minors within the Regional Development Planning Areas

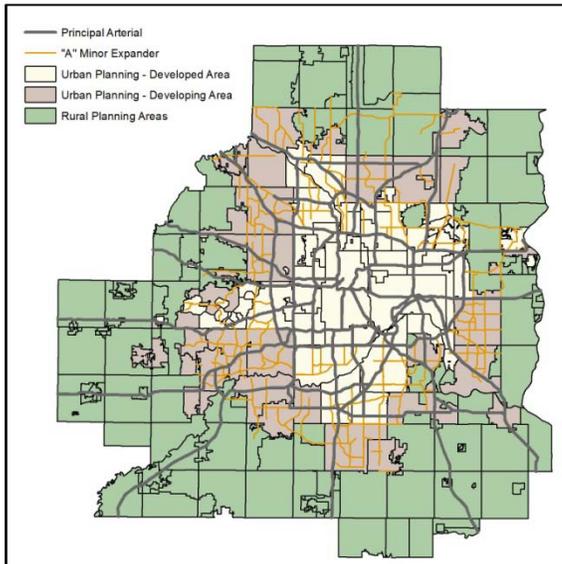
Augmentors



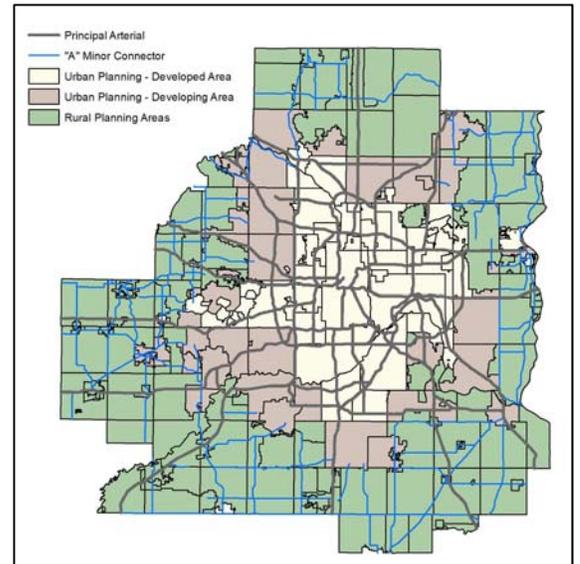
Relievers



Expanders



Connectors



3. Consistent with federal policy, regional policy, and agency priority, Principal Arterials are MnDOT’s investment priority and as a result it is investing significantly less in “A” Minor Arterials when compared to the seven counties. At the same time, the *Transportation Policy Plan* directs several “A” Minor implementation strategies toward MnDOT only.

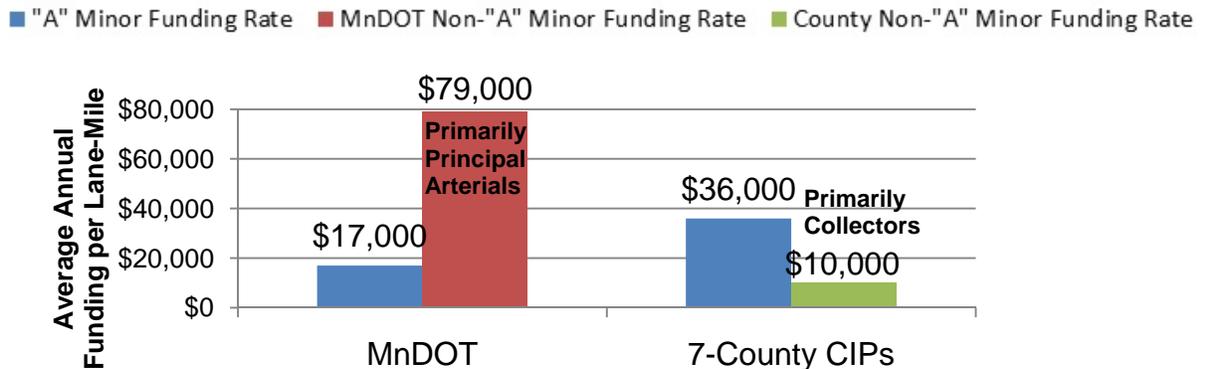
Recommendation:

The Metropolitan Council and TAB should complete further analysis of this investment imbalance and develop as part of the next update of the Transportation Policy Plan policies and strategies for building, managing, and improving all of the Regional Highway System.

Counties spend twice as much as MnDOT on “A” Minor Arterials per lane-mile.

The study found, as shown in Figure 4, counties spend twice as much as MnDOT on “A” Minor Arterials per lane-mile. When capital¹ investment was normalized based on VMT, the study found counties again spend twice as much as MnDOT on “A” Minor Arterials. The study found counties are investing this way even though detailed strategies do not directly speak to them in the Transportation Policy Plan.

Figure 4: Average Annual Capital Funding per Lane-Mile



Note: Dollars not adjusted for inflation and include capital¹ dollars only.

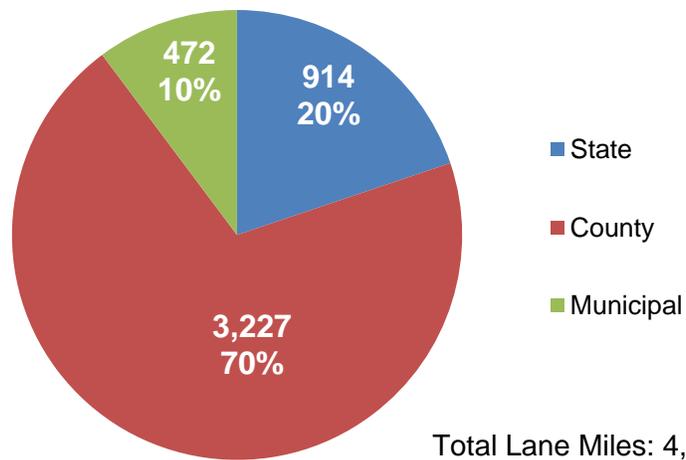
¹ The dollars reported are largely for roadway construction. Bridge costs were excluded when called out separately in data sources because their typically larger federal funding amounts would skew the assessment results. Planning, design, and right-of-way costs were excluded when called out separately in data sources because local policy does not allow federal funds to be used for these costs.

MnDOT and the counties are investing capital resources consistent with regional policy and agency priorities.

The data show MnDOT and the counties are investing capital resources consistent with regional policy and agency priorities. But it means some roadways may be falling through the cracks. For example, the Principal Arterial system is MnDOT's priority. The system is critical as it moves 48 percent of the vehicle-miles travelled in the region. But as shown in Figure 5, MnDOT also owns 20 percent of the region's "A" Minor Arterials and these routes, when competing with the needs on the Principal Arterial system, do not justify the same investment priority within MnDOT.

Figure 5: "A" Minor Arterial Ownership (Lane-Miles)

MnDOT owns 20 percent of the region's "A" Minor Arterials.



Related work includes MAP-21 interpretation, the MN Jurisdictional Realignment Project, and the Regional Solicitation Evaluation Study.

While each agency is investing resources consistent with regional policy, agency priorities, and federal policy as confirmed in MAP-21, the different levels of capital funding being put toward "A" Minor Arterials under MnDOT's jurisdiction may over time result in condition and capacity problems on parts of the Regional Highway System. The Metropolitan Council and TAB should acknowledge this investment imbalance and monitor work related to it including MAP-21 legislation interpretation, the Minnesota Jurisdictional Realignment Project analyzing road ownership, and the Regional Solicitation Evaluation Study. The Metropolitan Council and TAB as part of the next update of the Transportation Policy Plan should also develop policies and strategies for building, managing, and improving all of the Regional Highway System (Principal and "A" Minor Arterials) as appropriate within the context of all transportation system needs.

“A” Minor Arterial Regional Solicitation Conclusions and Recommendations

Approximately 14 percent of “A” Minor Arterial capital funding comes from the Regional Solicitation Process.

4. Federal funds are a small but important part of the capital funding used to improve the “A” Minor Arterial system.

Recommendation:

The Metropolitan Council and TAB should continue directing federal funds through the Regional Solicitation process to the “A” Minor Arterial system.

Another six percent comes from other federal sources.

Approximately \$21 million per year or 14 percent of the estimated \$148 million in capital¹ funding spent annually on “A” Minor Arterials are federal dollars that come through the TAB’s Regional Solicitation Process (see Figure 6). Based on the best data available, it is estimated that another six percent of the funds come from other federal sources (e.g., Federal discretionary, Urban Partnership Agreement) outside of the Regional Solicitation Process; based on an initial review of MAP-21, there will likely be a reduction in the amount of other federal funds allocated to the system in the future.

Regional Solicitation funding is important and competition for it is aggressive.

The federal funding allocated through the Regional Solicitation is important to MnDOT, the counties, and cities. Agencies use federal funds to leverage other state and local dollars to address larger safety and mobility issues and enhance modal elements. Local agencies stated in interviews conducted as part of this study that federal funding is one of the ways that they tackle more capital intensive projects and that many of these projects would not be pursued if federal funds were not available. Competition for federal funding provided through the Regional Solicitation has become increasingly more aggressive. In recent solicitations, “A” Minor Arterial requests have exceeded the amount of funding allocated by nearly three times.

80 percent of “A” Minor Arterial capital funds come from state and local sources.

While federal funding provides an important supplement, Figure 6 also shows that 80 percent of the capital funds used to enhance and rehabilitate the “A” Minor Arterial system are estimated to come from state and local sources. And in addition to capital investments, state and local agencies also make considerable investments in engineering and planning activities related to improving the “A” Minor Arterial system. Many of these investments take place several years prior to construction and include corridor studies, grant writing, public participation, and environmental documentation.

In addition to capital investments, state and local agencies also make considerable investments in planning and engineering activities.

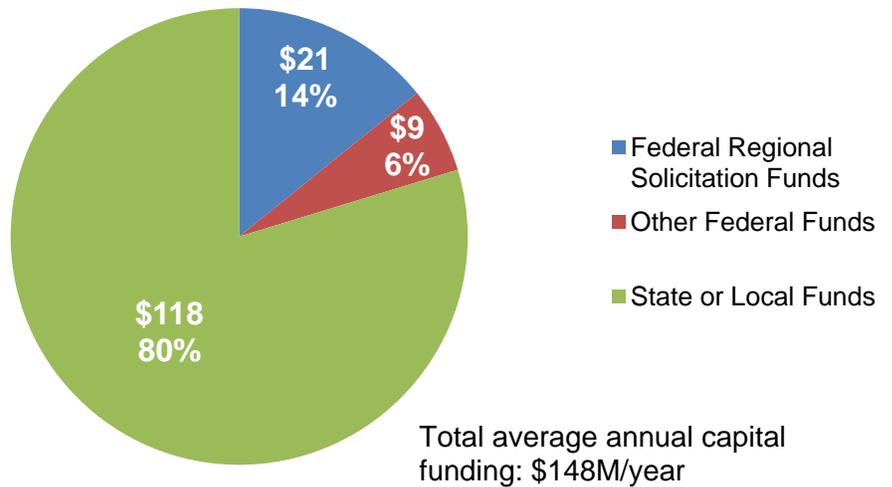
Travel on the “A” Minor Arterial system increased 11.8 million vehicle miles per day from 1999-2010.

The “A” Minor Arterial system saw a 30 percent reduction in the total number of crashes from 1995-2010.

The reduction in fatal and serious injury crashes from 1995-2010 has been even more dramatic with a 69 percent decrease on “A” Minor Arterials.

Based on a national peer review, the study found using functional classification to target investments is innovative and important to delivering key improvements.

Figure 6: 2000-2010 Average Annual “A” Minor Arterial Capital Funding (millions)



Source: MnDOT TIS database, City and County CIPs, Regional Solicitation database; dollars not adjusted for inflation and include capital¹ dollars only.

The “A” Minor Arterial investments, including those supported by Regional Solicitation funding, have contributed to performance improvements including carrying significant travel increases and transit mileage while simultaneously seeing fewer crashes, and most importantly fewer crash-related fatalities and serious injuries. From 1999 to 2010, travel on the “A” Minor Arterial system increased 11.8 million vehicle miles per day (see Figure 7) to nearly 19.5 million vehicles miles per day. During a similar time period (1995 to 2010), the “A” Minor Arterial system saw a 30 percent reduction in the total number of crashes compared to a 21 percent reduction for all roadways in the Metropolitan Area. The reduction in fatal and serious injury crashes has been even more dramatic with a 69 percent decrease on “A” Minor Arterials and 56 percent decrease for Principal Arterials (see Figure 8). There was a 60 percent reduction for all roadways in the Metropolitan Area. While roadway engineering is one of several factors in improving roadway safety – enforcement, emergency response, education, and vehicle engineering are also vital efforts – the Regional Solicitation has worked from its inception to award funds to modify the design of roadways with safety problems.

Figure 7: Average Daily VMT by Functional Classification

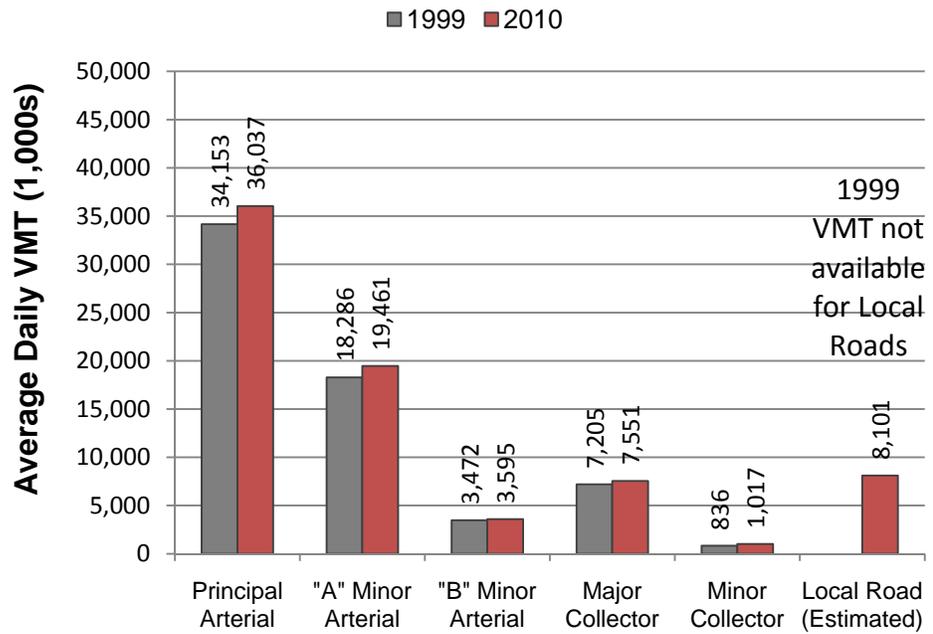
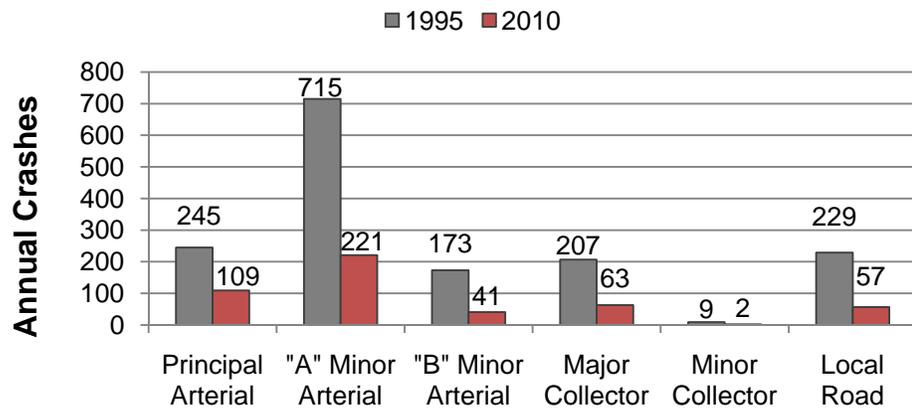


Figure 8: Annual Fatal (K) or Serious Injury (A) Crashes



Source: MnDOT crash records for 1995 and 2010

Finally, based on a national peer review, the study finds that very few transportation planning agencies employ functional classification as a strategy for targeting funding to projects. For agencies employing this innovative approach, targeted funding has proven to be important to making key improvements to the Minor Arterial system. As stated previously, the federal funding allocated through the Regional Solicitation has contributed to significant improvements to the "A" Minor Arterial and overall transportation system.



An "A" Minor Arterial Connector - Trunk Highway 5 in Waconia

5. The Regional Solicitation’s use of the four types of “A” Minor Arterials has done a good job of allocating federal funding in proportion to use.

Recommendation:

The TAB should continue to use the four types of “A” Minor Arterials to help target federal funding to different parts of the Regional Highway System. Allocation of federal funding among the Regional Solicitation categories should be based on available data such as vehicle-miles traveled, average daily traffic, bus miles traveled, person throughput, and freight use.

Federal funding has been allocated to elements of the “A” Minor Arterial system in proportion to their use in 2010.

Table 2 summarizes the share of “A” Minor Arterial centerline miles, lane-miles, and VMT (system usage) by the four types of “A” Minor Arterials and compares them to the allocation of Regional Solicitation funding for all solicitations from 1993 to 2009. The data show that the federal funding has been allocated to elements of the “A” Minor Arterial system in proportion to their use in 2010.

Table 2: “A” Minor Arterial Comparison by Type

“A” Minor Arterials	Center-line Miles %	Lane Miles %	VMT % (2010)	Bus-Miles Traveled % (2010)	Regional Solicitation Funding %	Regional Solicitation Funding (\$millions)
Augmentor	9	13	16	36	16	\$59
Reliever	22	26	27	52	24	\$89
Expander	34	36	40	12	42	\$156
Connector	35	25	17	0	18	\$65
TOTAL	100	100	100	100	100	\$369

While the distribution of funds between the four types of “A” Minor Arterials will not perfectly match VMT distribution in every solicitation year, over time, it is important to maintain this general relationship between federal funds allocated and use.

6. MAP-21, regional policy emphasizing lower cost/high benefit projects, rising construction costs, fewer staff resources, changing technology, and other factors contribute to a need to review the Regional Solicitation.

Recommendation:

As part of the upcoming Regional Solicitation Evaluation, the TAB and TAC should:

Cost-effectiveness and putting dollars toward performance issues are underlying themes in the 2030 TPP and MAP-21.

- A. Continue to evaluate MAP-21 to identify the implications of the legislation on federal funding for the “A” Minor Arterial system and on the Regional Solicitation Process. As previously stated, the study finds that use of the four types of “A” Minor Arterials in the Regional Solicitation Process has done a good job of allocating federal funding to system elements throughout the region in proportion to their use (see Recommendation 5). But changes introduced by MAP-21 may reduce funds available to the “A” Minor Arterial system. The TAB and TAC should consider how to continue providing federal funding to the four types of “A” Minor Arterials consistent with MAP-21.
- B. Examine the effect of increasing the number of points awarded to projects for cost effectiveness. The 2030 Transportation Policy Plan (2010) refocused highway investment priorities on lower cost/high benefit projects. In addition, cost-effectiveness and putting dollars toward performance issues is an underlying theme in the Transportation Policy Plan and MAP-21. The TAB and TAC should consider giving project cost and cost effectiveness greater emphasis in the Regional Solicitation Process to better align with regional priorities and recognize national goals. It should be noted that projects that are cost effective may still have a high project cost if the benefit that the project provides is high (i.e., there is high value for the money).
- C. Balance the desire to increase the maximum grant amount with the desire to award funding to a large number of different projects. While the Regional Solicitation’s maximum grant amount encourages the delivery of lower cost/high benefit projects, the solutions to some transportation issues cost more than what can be currently funded using Regional Solicitation grants. The Regional Solicitation has tried to strike a balance between providing funds to address issues and creating

Some regional partners reported the maximum grant amount has prevented them from addressing more complex problems.

opportunity to distribute the federal funding to projects around the region. During interviews completed for the study, regional partners reported the maximum grant amount has prevented them from addressing more complex problems. The regional partners also reported that rising construction costs have eroded their ability to address larger projects without breaking them into smaller chunks -- which is more inconvenient to the traveling public and less efficient for agencies -- or finding other sources of funding to couple with Regional Solicitation dollars, which they report is extremely difficult to align properly. The size of Regional Solicitation grants should continue to be balanced with the need to distribute funds throughout the region over time.

Regional partners reported they felt the Regional Solicitation Process is fair and balanced, but shared concerns about the level of effort needed to prepare quality applications.

D. Seek ways to limit the level of effort required to prepare Regional Solicitation applications. During interviews completed for the study, regional partners reported they felt the Regional Solicitation Process is fair and balanced, but shared concerns about the level of effort needed to prepare quality applications. As the TAB and TAC prepare for future Regional Solicitations, the number of questions asked and their complexity should be minimized to only those necessary to continue ensuring a fair and balanced solicitation for quality projects that help implement the Transportation Policy Plan and local comprehensive plans.

This study created a database that includes all of the "A" Minor Arterial projects selected for funding through the Regional Solicitation Process from 1993 to 2009.

E. Provide for the online submittal of Regional Solicitation applications, continue building the database of Regional Solicitation applications started by this study, and consider, as part of the Regional Solicitation Evaluation, implementing technology that would automatically populate the database when applicants submit future applications online. This study created a database that includes all of the "A" Minor Arterial projects selected for funding through the Regional Solicitation Process from 1993 to 2009 (see Figure 9).

The database was constructed in a way that supports future development to allow some data fields to automatically populate after a local agency electronically submits their Regional Solicitation application. The database could also be expanded to include all types of applications submitted to the Regional Solicitation such as Non-freeway Principal Arterial and Congestion Management and Air Quality (CMAQ) applications. In addition, local agencies could help build the region's body of knowledge about Regional Solicitation-funded

projects by submitting simple close out information online when construction of the federally funded project is complete.

Figure 9: Database of Successful Regional Solicitation Projects

Application ID	Application Number	State Project Num	Solicitation Type	App Category	Original Solicited Year	Final Prog Year	TIP Year	Applicant	Project Location	Project Name	Project Type	Project Description	Federal Request	Local Match
1	AA-09-01	141-433-02	STP	A Minor - Augmenter	2009	2013		Minneapolis	Minneapolis	Granary Road	New Road Construction	Construct first segment of new road (Granary Rd) from 17th Ave SE to 25th Ave SE in Minneapolis as 3-lanes with turn lanes, signals, lighting, sidewalks and bicycle trail.	\$7,000,000.00	\$1,750,000.00
2	AC-09-02	19-906-18	STP	A Minor - Connector	2009	2013		Dakota County	New Market Twp, Lakeville	CSAH 9 Reconstruction	Road Reconstruction	On CSAH 9 from CSAH 46/2 in New Market Twp to CSAH 70 in Lakeville and Eureka Twp. Reconstruct 2-lane roadway with paved shoulders and turn lanes.	\$5,500,000.00	\$1,375,000.00
3	AF-09-01	02-611-82	STP	A Minor - Expander	2009	2014		Anoka County	Coon Rapids	CSAH 11 Reconstruction	2 to 4-Lane Expansion	On CSAH 11(Foley Blvd) from 101st Ave to Egret Blvd in Coon Rapids. Reconstruct to 4-lane divided roadway with new signals and construct pedestrian/bicycle trails.	\$2,332,000.00	\$583,000.00
4	AE-09-03	188-020-21	STP	A Minor - Expander	2009	2013		Lakeville	Lakeville	CSAH 60 (185th St)/CSAH 50 (Kenwood Trail) Intersection	Intersection	On CSAH 60 and CSAH 50 in Lakeville. Reconstruct intersection to multilane roundabout with 4 approaches, 8 approach lanes, 2 circulatory lanes and pedestrian/bicycle trails, sidewalk, curb and gutter	\$1,600,000.00	\$400,000.00
5	AE-09-08	010-618-013	STP	A Minor - Expander	2009	2014		Carver County	Chanhassen	CSAH 18 Reconstruction	2 to 4-Lane Expansion	On Carver CSAH 18 (Lyman Blvd) from Carver CSAH 15 (Audobon Blvd) to Carver CSAH 17 (Powers Blvd) in Chanhassen-reconstruct to four lane roadway.	\$4,880,000.00	\$1,220,000.00
6	AE-09-10	194-010-11	STP	A Minor - Expander	2009	2013		Chanhassen	Chanhassen	TH 101 Reconstruction	2 to 4-Lane Expansion	On TH 101 from Lyman Blvd to Pioneer Trail in Chanhassen. Reconstruct to 4-lane divided roadway with turn lanes plus bicycle/pedestrian trails and pedestrian underpass.	\$5,320,000.00	\$1,330,000.00
7	AE-09-11	70-617-22	STP	A Minor - Expander	2009	2013		Scott County	Shakopee	CSAH 17 Reconstruction	2 to 4-Lane Expansion	On CSAH 17 from CSAH 16 to south of CSAH 78 in Shakopee. Reconstruct to 4-lane divided roadway and reconstruction of CSAH 78 at intersection, signals, bicycle/pedestrian trail.	\$6,960,000.00	\$1,740,000.00
8	AR-09-01	02-651-07	STP	A Minor - Reliever	2009	2014		Anoka County	Coon Rapids, Blaine	CSAH 51 (University Ave) Reconstruction	2 to 4-Lane Expansion	On CSAH 51 from just north of CSAH 12 to 121st Ave in Coon Rapids and Blaine. Reconstruct to 4-lane divided roadway with turn lanes at all public streets, installation of curb and gutter, separate	\$6,120,000.00	\$1,530,000.00
9	AR-09-05	27-661-46	STP	A Minor - Reliever	2009	2014		Hennepin County	Hopkins, Minnetonka	CSAH 61 (Shady Oak Rd) Reconstruction	2 to 4-Lane Expansion	On CSAH 61 from CSAH 3 to north of TH 7 in Hopkins and Minnetonka. Reconstruct to 4-lane divided roadway, sidewalk and multi-use trail.	\$7,000,000.00	\$3,000,000.00
10	AR-09-06	195-010-10	STP	A Minor -	2009	2013		Eagan	Eagan	TH 149 Reconstruction	4 to 6-Lane	On TH 149 (Dodd Rd) from TH 55 to north ramp of I-494	\$2,480,000.00	\$620,000.00



An “A” Minor Arterial Connector and Expander Intersect – CSAH 21 and CSAH 27 in Credit River Township, Scott County

7. While a study survey of completed “A” Minor Arterial projects showed a high level of consistency between proposals partially funded by the Regional Solicitation and in-place construction, the survey also identified a small number of projects with significant project elements that did not match their Regional Solicitation application and did not appear to go through the TAB’s formal scope change process. The study survey also revealed compelling reasons for the changes and confusion about roles and responsibilities for identifying and initiating scope changes.

Recommendation:

The TAB and TAC should:

- A. Work closely with MnDOT Metro State Aid and local Federal Highway Administration (FHWA) staff to define “scope changes” and communicate the need for them to project sponsors. The TAB should adopt the definition and direct questions regarding scope changes and the need for them to the TAB Coordinator, Metropolitan Council staff, and/or the MnDOT Metro State Aid Office.

A visual inventory was completed as part of this study for 20 “A” Minor Arterial projects partially funded through the Regional Solicitation. The 20 projects inventoried as part of this study include hundreds of project elements. The study finds that there is a high level of consistency for a majority of project elements between proposals partially funded through the Regional Solicitation and in-place construction. This high level of consistency is notable given that most projects are still conceptual when applications to fund them are submitted through the Regional Solicitation. However, there was a small percentage of project elements that did not match their Regional Solicitation application and did not go through the formal scope change process.

- B. Review current procedures, roles, and responsibilities for monitoring the project development process with respect to scope changes and develop policy recommendations. The TAB should adopt the policy recommendations and direct questions regarding the scope change process to the TAB Coordinator, Metropolitan Council staff, and/or the MnDOT Metro State Aid

A visual inventory was completed as part of this study for 20 “A” Minor Arterial projects partially funded through the Regional Solicitation.

Office. Examples of policy recommendations include encouraging as few scope changes as practical and encouraging project sponsors to identify any scope changes as early in the project development schedule as possible.

Recognize and balance the desire to have a fair and equitable Regional Solicitation process with the constraints put on agencies by federal rules.

The policy recommendations should recognize and balance the desire to have a fair and equitable Regional Solicitation process with the constraints put on agencies by federal rules. For example, the federal environmental review process was recently changed to require project sponsors identify full project funding prior to preparing environmental documentation. Given these federal requirements, limited detail may be known about many projects when funding is sought and it will likely become more common for project elements to change as more detailed design and environmental work is completed. The scope change process should recognize this tension and balance the need for oversight with the needs for project development efficiency and effectiveness.

- C. Include the scope change definition, formal scope change process, and contact information for the TAB Coordinator and MnDOT Metro State Aid Office in the Regional Solicitation materials and communicate them to project sponsors, including sponsors of MnDOT projects on the state system which do not go through the MnDOT Metro State Aid review process.



An “A” Minor Arterial Expander, Main Street (CSAH 14) in Centerville

8. The survey of completed “A” Minor Arterial projects showed the Regional Solicitation is targeting federal funding toward quality improvements to the Regional Highway System.

Recommendation:

The TAB should consider hosting a showcase of completed projects partially funded through the Regional Solicitation.

The showcase should create opportunities to share project benefits and implementation challenges with elected and appointed officials.

The showcase of completed projects should become an annual or biennial event to celebrate the successful implementation of these competitive, federally funded projects and to create opportunities to share project benefits and implementation challenges with elected and appointed officials.



An “A” Minor Arterial Expander - Cedar Avenue BRT in Apple Valley and Lakeville

Other Conclusions and Recommendations

9. MAP-21, Thrive MSP 2040, the 2040 [Transportation Policy Plan](#) and other state and regional studies may significantly affect the “A” Minor Arterial system.

Recommendation:

The Metropolitan Council and TAB should forward information from this study to agencies that are or will be completing studies that affect the “A” Minor Arterial system and should monitor the studies to respond to potential effects.

Some of the other work that may affect the “A” Minor Arterial system include regional efforts to evaluate MAP-21 and future transportation bills, update of the metropolitan development guide now called Thrive MSP 2040, the next update of the TPP (2040 TPP), the Regional Solicitation Evaluation, MnDOT’s Minnesota Jurisdictional Realignment Project, and MnDOT’s Highway Investment Plan. Specific examples of considerations for the “A” Minor Arterial system include the following:

Consider the implications of MAP-21 on the “A” Minor Arterial system and its funding.

1. Regional efforts to identify the implications of MAP-21 should use the findings, conclusions, and recommendations from the “A” Minor Arterial System Evaluation Study to better understand the implications of MAP-21 on the “A” Minor Arterial system. While MAP-21 appears to focus federal investment priorities on the Principal Arterial system, it may also reduce the region’s ability to fund the “A” Minor Arterial system. As these kinds of implications are better understood the region should consider the implications of MAP-21 on the “A” Minor Arterial system and its funding.

Examine the feasibility of pooling federal dollars to increase efficiencies on projects.

2. As part of MAP-21 interpretation efforts and the Regional Solicitation Evaluation, the TAB and TAC should, in coordination with MnDOT State Aid, examine the feasibility of pooling federal dollars to increase efficiencies on projects. For example, some regions have allowed and MAP-21 may be encouraging road authorities to replace local or state dollars above the required local match with federal dollars from smaller projects so the smaller projects would not use federal funds nor be subject to federal requirements. This approach would improve project development efficiency and reduce the

administrative burden on agencies for the development of smaller projects since it is more costly and complex to develop a project through the federal process than through the state process. An ad hoc committee of the TAC is studying ways to improve local project delivery and this technique has been discussed as a way to move projects without environmental impacts or right-of-way needs through a simpler process to minimize unnecessary administrative work and delays.

This change may require some legislation and/or other policy changes. This recommendation was identified through the nine phone interviews completed as part of this study with planning and engineering staff from the seven metropolitan area counties, Bloomington, and Minneapolis. This kind of federal fund pooling is practiced by the Metropolitan Council on regional transit capital projects and is being done in Greater Minnesota Area Transportation Partnerships (ATPs).

Acknowledge the importance of the “A” Minor Arterial system in future regional policy.

3. As part of Thrive MSP 2040, the forthcoming update of the metropolitan development guide, and the next update of the Transportation Policy Plan, the Metropolitan Council and TAB should use the information developed as part of this study in acknowledging the importance of the “A” Minor Arterial system to the region.

Develop a more defined regional process for identifying future Principal Arterials.

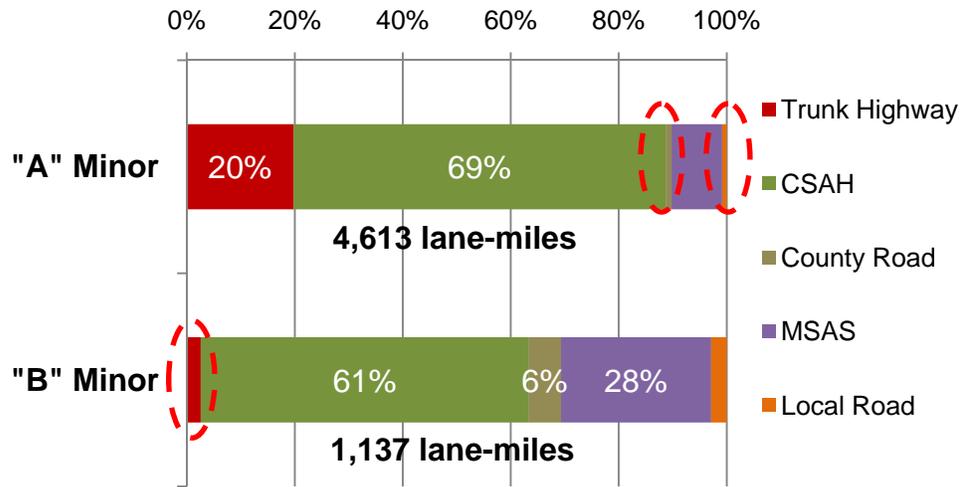
4. As part of the next update of the Transportation Policy Plan, the Metropolitan Council and MnDOT should develop a more defined regional process for identifying future Principal Arterials. The Metropolitan Council, MnDOT and TAB should identify how existing “A” Minor Arterials identified as future Principal Arterials should be treated with respect to funding and other policies. Through the interviews conducted as part of this study, county partners noted the region lacks a formal process for identifying future Principal Arterials, and the absence of a process means that existing “A” Minor Arterial may not be improved the way they should to meet long-term travel needs. At the same time, study partners acknowledged MnDOT is challenged to maintain and operate the routes they already own, let alone taking on more facilities. The process for identifying future Principal Arterials needs more discussion and clarity for all partners. And the Metropolitan Council, MnDOT, and TAB should decide if existing “A” Minor Arterials designated as future Principal Arterials warrant special funding, operations, and management within the context of other, existing needs on the transportation system.

There is a small percentage of roadways on the Minor Arterial system that may present opportunities for realignment either by jurisdictional transfer or eligibility for state aid funding.

5. The Metropolitan Council, MnDOT, the seven metropolitan counties, and affected cities should, as part of MnDOT's Minnesota Jurisdictional Realignment Project and the next update of the Transportation Policy Plan, consider if there are opportunities for realignment by jurisdiction or eligibility for state aid funding within the region's highway and road system. The study raised a larger question of whether or not MnDOT should own "A" Minor Arterials when they are not able to invest in them at the same levels as counties. The study also found there is a small percentage of roadways on the Minor Arterial system that may present other opportunities for realignment either by jurisdictional transfer or eligibility for state aid funding (see Figure 10). While there may be exceptions, "A" Minor Arterials should generally be part of the state aid system and Trunk Highways should be classified as Principal or "A" Minor Arterials. Local agencies noted that some of the roadways identified are currently being transferred to different jurisdictions or are applying to be part of the state aid system.

MnDOT, through its Minnesota Jurisdictional Realignment Project, should examine if MnDOT should continue to own "A" Minor Arterials, if the 29 lane-miles of "B" Minor Arterials on the Trunk Highway system present opportunities for realignment and, if so, identify policy needed to support the changes. In addition, as part of the next update of the Transportation Policy Plan, the Metropolitan Council should ask local agencies to review the 89 lane-miles of non-State Aid routes on the "A" Minor Arterial system and consider if they present opportunities for realignment. As shown in Figure 10, of the 1,137 "B" Minor Arterial lane-miles, three percent (29 lane-miles) are Trunk Highways and of the 4,613 "A" Minor Arterial lane-miles, one percent (50 lane-miles) are not part of the County Highway State Aid system and one percent (39 lane-miles) are not part of the Municipal State Aid Street system. The Metropolitan Council, MnDOT, the seven metropolitan counties, and affected cities should work together to evaluate if these exceptions are justified.

Figure 10: Composition of the “A” and “B” Minor Arterial System (Lane-Miles)



An “A” Minor Arterial Reliever – Kellogg Boulevard in Downtown Saint Paul

10. The “A” Minor Arterial system actively supports economic activity and the transit, freight, bicycle, and pedestrian systems consistent with regional and local policies. Data is not readily available to demonstrate all of these relationships.

Recommendation:

The Metropolitan Council and TAB should assemble needed data on “A” Minor Arterial transit, freight, bicycle, and pedestrian use and investments, including location data for sidewalks, trails, and bus stops and ADA-compliance for bus stops. Data should also be assembled for how “A” Minor Arterials support the local and regional economy. The Metropolitan Council and TAB should consider the data and clarify multi-modal policy for the Regional Highway System, if necessary.

Data is not available to help the region understand the role of the “A” Minor Arterials in supporting economic activity and the freight, bicycle, and pedestrian systems.

Intuitively the region knows “A” Minor Arterials are important in these areas.

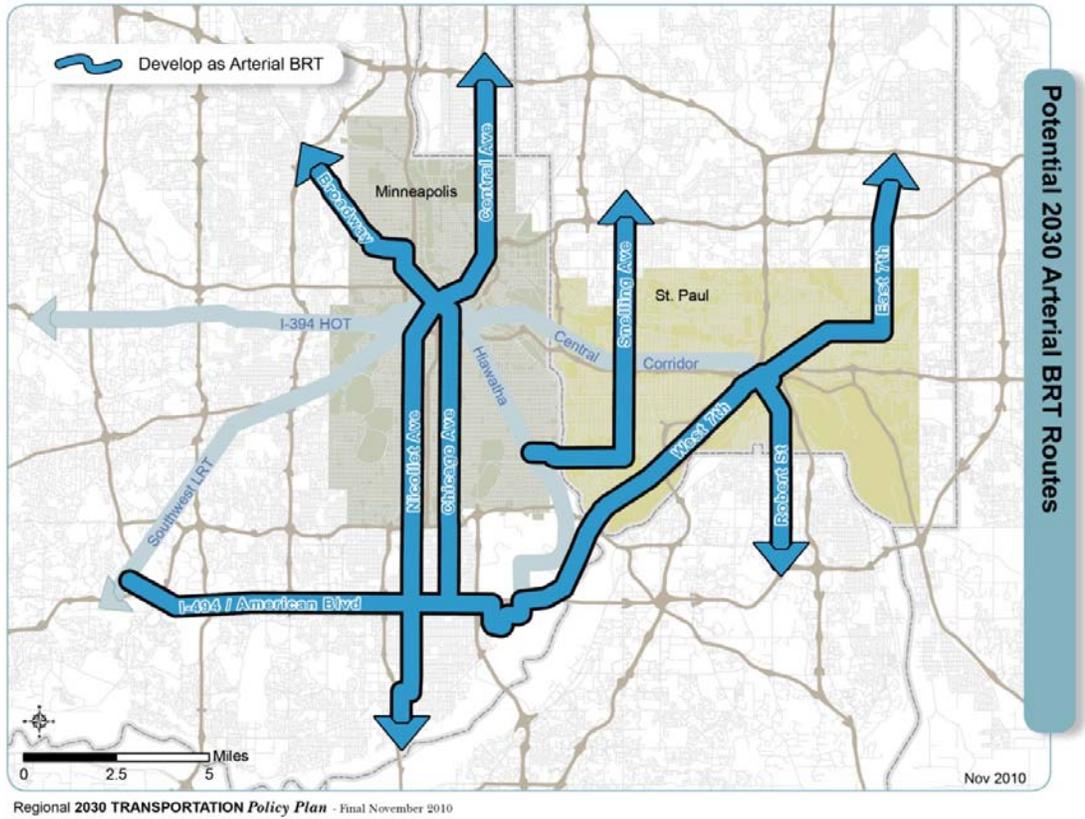
Regional policies identify the role of Minor Arterials in supporting the economy, transit, freight, bicycles, and pedestrians as part of the regional transportation system. The 2030 Transportation Policy Plan defines the Regional Highway System (Chapter 6, p. 64) as Principal and “A” Minor Arterials and says local governments should plan for and implement a system of interconnected arterial and local streets, pathways and bikeways to meet local travel needs without using the Regional Highway System (Strategy 4f). It also says the Council, MnDOT, local governments, and transit providers will plan for and implement a multimodal roadway system (Strategy 9b) with emphasis on travel barrier removal for bicyclists and pedestrians in the planning, design, and implementation of the Regional Highway System (Strategy 18e). The Regional Solicitation supports these regional policies by awarding points for land use, freight, and multi-modal elements of projects.

Local transportation plans also address these issues. The role of transportation in supporting the economy is discussed in the county transportation plans and the transportation plans for Bloomington, Maple Grove, Minneapolis, Saint Paul, and Woodbury, the five cities surveyed as part of the “A” Minor Arterial System Evaluation Study. Some of the plans acknowledge the role of freight in promoting economic activity and included policies emphasizing the identification and improvement of roads best suited for carrying freight while limiting impacts (noise, traffic, etc.) to residential land uses. All of the plans reviewed as part of the “A” Minor Arterial System Evaluation Study

have policies for improving bicycle and pedestrian amenities or connections. The bicycle and pedestrian system policies range from developing a complete trail system in rural areas to providing practical transportation options through Complete Streets in fully developed areas.

While policies exist, data is only available and has been collected for general traffic, transit, and general capital investments in the “A” Minor Arterial system. Data is not available to help the region understand the role of the “A” Minor Arterials in supporting economic activity and the freight, bicycle, and pedestrian systems. Intuitively the region knows “A” Minor Arterials are important to the economy because many regional job and shopping centers are located along “A” Minor Arterials and “A” Minor Arterials connect rural centers to each other. Over-the-road shippers identify the “A” Minor Arterial system as key in moving freight between industrial and commercial businesses and the Principal Arterial network. Road authorities report that most “A” Minor Arterials include sidewalks, trails, bike lanes, or crossings as appropriate for context. And the region knows some “A” Minor Arterials will be increasingly important for transit as the Arterial bus rapid transit (BRT) system shown in Figure 11 is implemented. The Metropolitan Council and TAB should assemble needed data on “A” Minor Arterial transit, freight, bicycle, and pedestrian use and investments. A first step toward coordinating the collection of this data would be through completion of the Metropolitan Council’s Regional Bicycle System Master Study. Data should also be assembled for how “A” Minor Arterials support the local and regional economy. The Metropolitan Council and TAB should consider the data and clarify multi-modal policy for the Regional Highway System, if necessary.

Figure 11: Potential 2030 Arterial BRT Routes



Note: This map does not include the additional routes that are under consideration but not yet amended into the Arterial BRT system plan.

11. The analysis performed for this study was possible because the study created a new database combining MnDOT and Metropolitan Council highway information.

Recommendation:

MnDOT and the Metropolitan Council should make the database available to all agencies and work together and decide how to best maintain the GIS database of highway and administrative and functional classification information developed as part of this study.

For the first time in the region, the study was able to merge and analyze Metropolitan Council data with MnDOT TIS data.

For the first time in the region and because of recent advances in GIS technology, the “A” Minor Arterial study was able to merge and analyze Metropolitan Council data (administrative functional classification, regional development planning areas, and bus trips) with MnDOT Transportation Information System (TIS) data (centerline miles, lane-miles, traffic volumes, and crashes). The “A” Minor Arterial System Evaluation Study could not have been completed in the same way without this new database, and it will be valuable to the region including to the TAB, MnDOT, Metropolitan Council, counties, and cities. It should be maintained in the future and made available to all agencies to support analyses like the “A” Minor Arterial System Evaluation Study.

12. Considerable effort was required to collect and summarize “A” Minor Arterial funding information at the regional level.

Recommendation:

The Metropolitan Council and TAB should evaluate if funding data by functional classification, like that produced by this study, are valuable and if they are, should work with agencies to develop and implement a system of collecting and summarizing the information to make it more readily available and consistent for analysis.

This study collected and summarized comprehensive funding data for the “A” Minor Arterial for the first time.

MnDOT, the counties, and the cities use a variety of funding sources to build and maintain the “A” Minor Arterial system. The study team investigated approaches for collecting funding data from each road authority and confirmed that funding information for the Twin Cities “A” Minor Arterial system is not available from a single source. This study collected and summarized comprehensive funding data for the “A” Minor Arterial for the first time. If the Metropolitan Council and TAB would like to complete analysis efforts like this in the future, the region would benefit from improved ways of collecting and summarizing funding by roadway functional classification.



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