



Public Works Department Service Programs **2012 Bond Package Recommendations**



Purpose

The purpose of this summary is to explain the assets maintained and created by the Public Works Department (PWD); show the current inventory of those assets; describe the prioritization process for the maintenance or replacement of the assets; and compare the PWD asset needs against the programs proposed for the 2012 bond election.

Background Information

The Public Works Department integrates work in the City's right-of-way into the design of Capital Improvement Program (CIP) projects and its ongoing maintenance and repair programs in order to manage assets such as pavement, sidewalks, bicycle facilities and urban trails. Assets are tracked by the PWD Street & Bridge Service Districts (*Figure 1*), which follow the City's full-purpose jurisdiction boundaries.

There are 7,350 lane-miles of pavement in the City, consisting of arterials (15%), collectors (33%) and neighborhood streets (52%). Approximately 75% of the City-wide pavements are in fair or better condition. PWD has established an ongoing program to preserve and improve the existing road network, with the goal of addressing 10% of the inventory each year. Graphs of both the existing street network per sector and the historic investment for both CIP projects and the ongoing repair and maintenance program are illustrated in *Figure 2: Existing Network & Expenditures*.

In order to determine what priority projects are needed, the Public Works Department is continuously assessing the condition and prioritization of roadways, sidewalks, bicycle facilities, multi-use trails, and other capital assets. This prioritization process is used to identify projects that are candidates for funding, through future general obligation bond programs or other potential funding sources.

Public Works uses a Coordinated Asset Management Approach in how it operates, maintains, and manages the right-of-way. The approach identifies and discusses work coordination and infrastructure activities. It focuses on a "dig-once" approach which effectively utilizes financial and staff resources; maintains the integrity of new or reconstructed assets; reduces impacts on traffic; and minimizes disturbances to neighborhoods. The diagram in *Table 1: Prioritization Process*, exemplifies how overlapping infrastructure needs can assist in prioritizing "dig-once" opportunities.

Figure 1: PWD Street & Bridge Service Districts

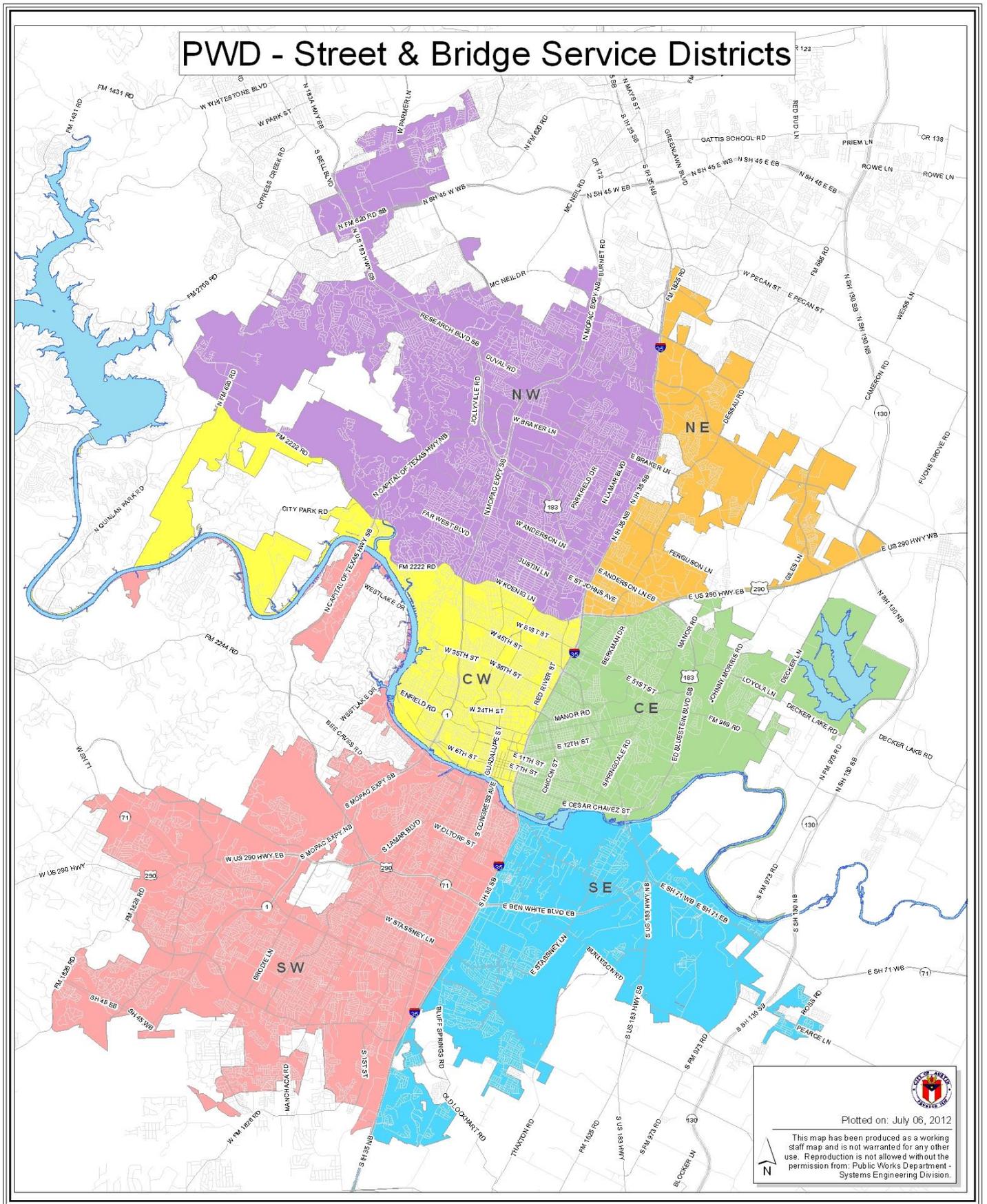
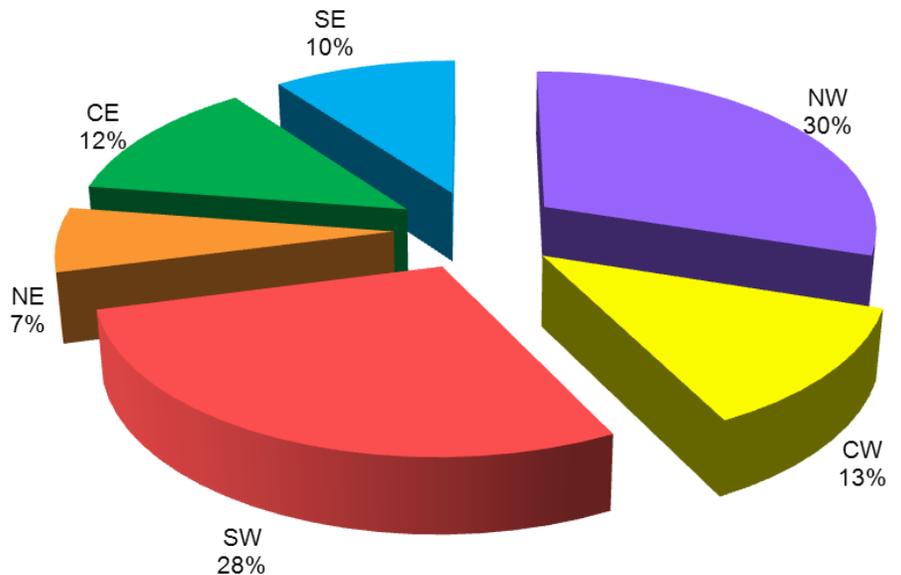


Figure 2: Existing Network & Expenditures

Existing Street Network per Sector

SECTOR	TOTAL LANE MILES
Northwest	2,206.33
Central West	920.62
Southwest	2,088.05
Northeast	476.78
Central East	915.29
Southeast	743.13
TOTAL	7,350.20



Historic Investment – (1998-2010)

Distribution by Cost

SECTOR	COST (\$M)
Northwest	\$42.6
Central West	\$75.4
Southwest	\$64.9
Northeast	\$32.4
Central East	\$52.9
Southeast	\$40.2
TOTAL	\$308.4

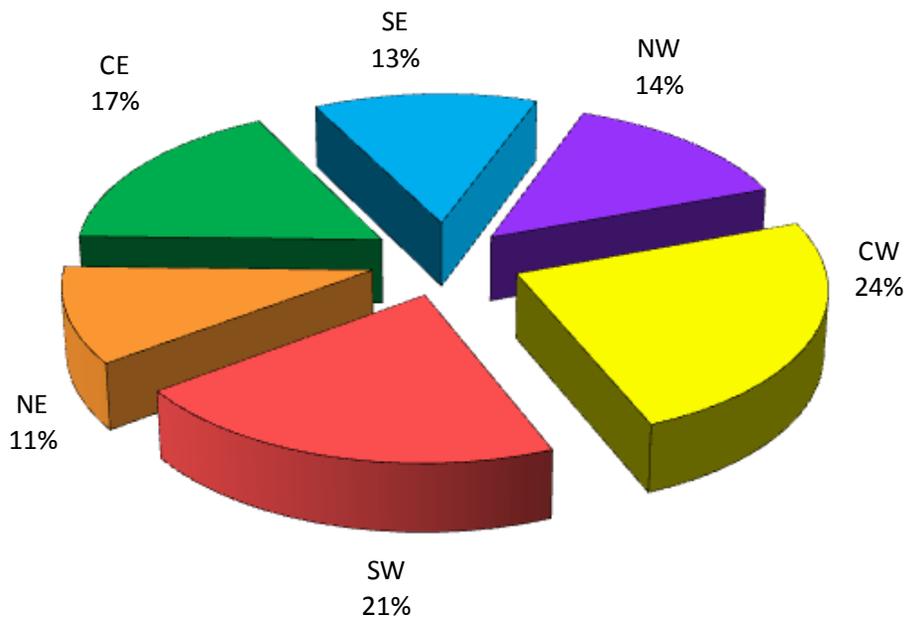
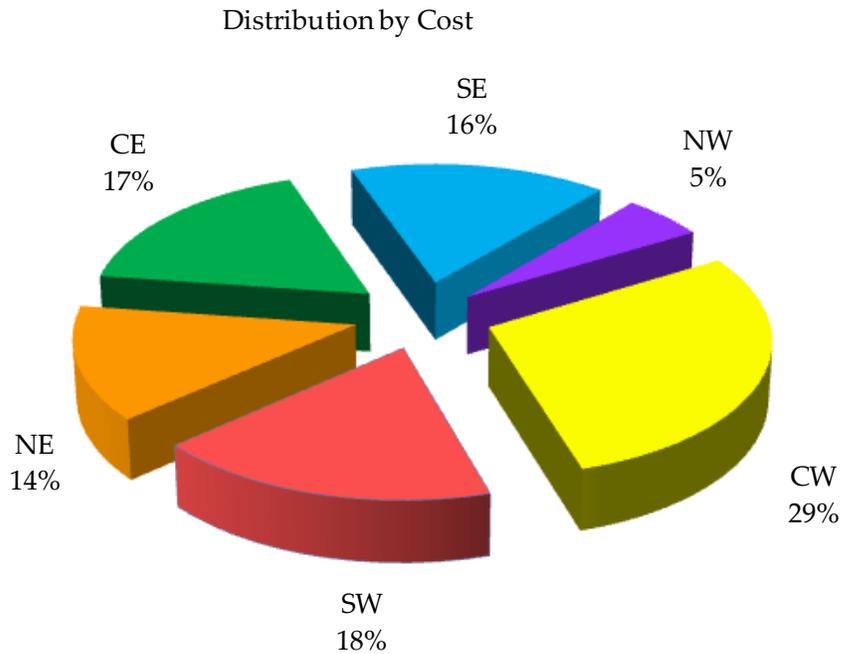


Figure 2: Existing Network & Expenditures (continued)

Historic Investment – Capital (2000, 2006, 2010 Bond Programs)

SECTOR	COST (\$M)
Northwest	\$10.6
Central West	\$57.9
Southwest	\$36.2
Northeast	\$27.4
Central East	\$34.9
Southeast	\$32.8
TOTAL	\$199.8



Historic Investment – Street Preventive Maintenance (1998-2010)

SECTOR	COST (\$M)
Northwest	\$32.0
Central West	\$17.5
Southwest	\$28.7
Northeast	\$5.0
Central East	\$18.0
Southeast	\$7.4
TOTAL	\$108.6

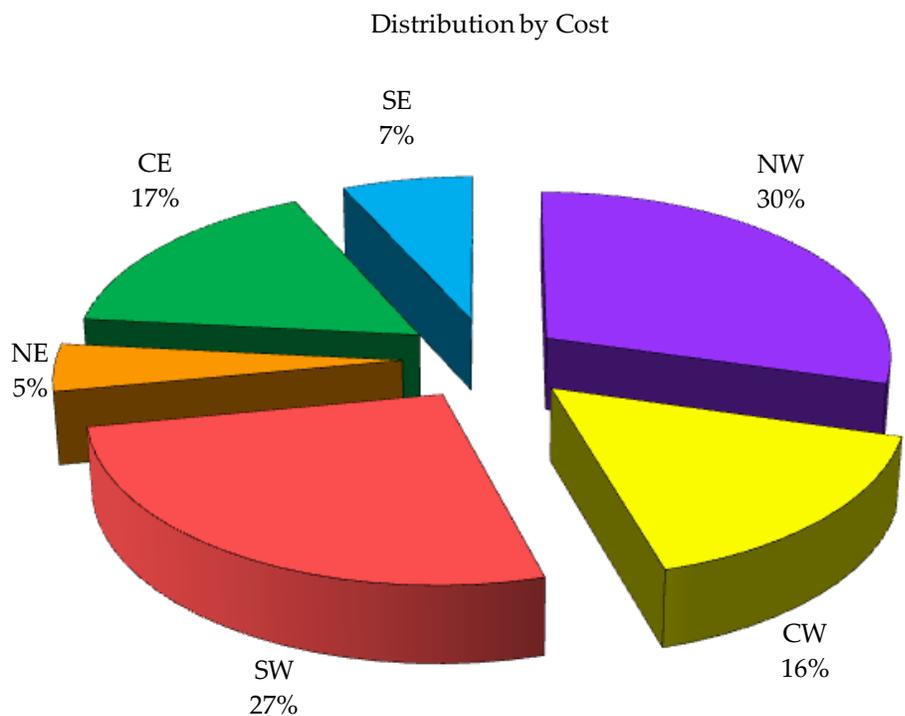
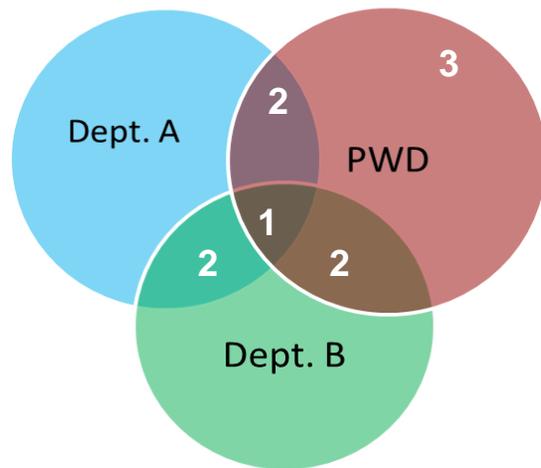


Table 1: Prioritization Process

Priority 1: Neighborhood Impact Program – multiple department priorities combined into one a “dig-once” coordinated approach and optimizing the use of capital and operating funds.

Priority 2: Arterial/Collector Improvements – a coordination opportunity between at least two departments. This program includes Great Streets, Harris Branch Parkway, and the Street Reconstruction/Rehabilitation program.

Priority 3: Infrastructure Preservation and Connectivity – individual priorities for a department. In PWD, these priorities include improvements to the following assets: bridges; pavement; curbs, ramps, and sidewalks; bicycle facilities; child safety projects; and intersections.



This diagram portrays the various types of cost and resource sharing coordination opportunities that can exist when addressing multiple critical infrastructure needs in one project.

Proposed Bond Programs

In the fall of 2011, a Critical Infrastructure Needs Assessment was performed and provided a preliminary assessment of the City of Austin’s critical infrastructure. The report included analytical information on the following PWD assets: Bridge Infrastructure, Pedestrian & Bicycle Networks, and Streets & Pavements.

The 2011 Critical Infrastructure Needs Assessment report identified the primary infrastructure needs in the department, and thus laid the foundation for creating proposed programs to be included in the Bond 2012 election.

The following PWD programs have been identified as part of the Transportation/Mobility Bond Category in the proposed 2012 bond election:

9589.007 - Bicycle, Urban Trail & Grant Match Projects

9589.001 - City Wide Bikeways

9588.001 - City Wide Sidewalks, Ramps, Curbs and Gutters

9587.015 – Street Reconstruction Program

9684.002 - Minor Bridges, Culverts and Structures

The subsequent sections provide details on each program, including program information, summaries from the 2011 Critical Infrastructure Needs Assessment, past work completed, current percentage of infrastructure per sector compared to the amount spent, and prioritization processes as they relate to each asset type.

9589.007 - Bicycle, Urban Trail & Grant Match Projects

The purpose of the Bicycle, Urban Trail & Grant Match Projects Program is to implement portions of the Bicycle Master Plan that improve the City's on-street bicycle and urban trail network. These projects include small, quick construction projects of bicycle facilities and urban trails, and a match for potential grant funding opportunities. Projects developed will be coordinated among Departments that will include objectives identified in but are not limited to the following plans: Bicycle Master Plan, Urban Trail Plan and Neighborhood Plans.

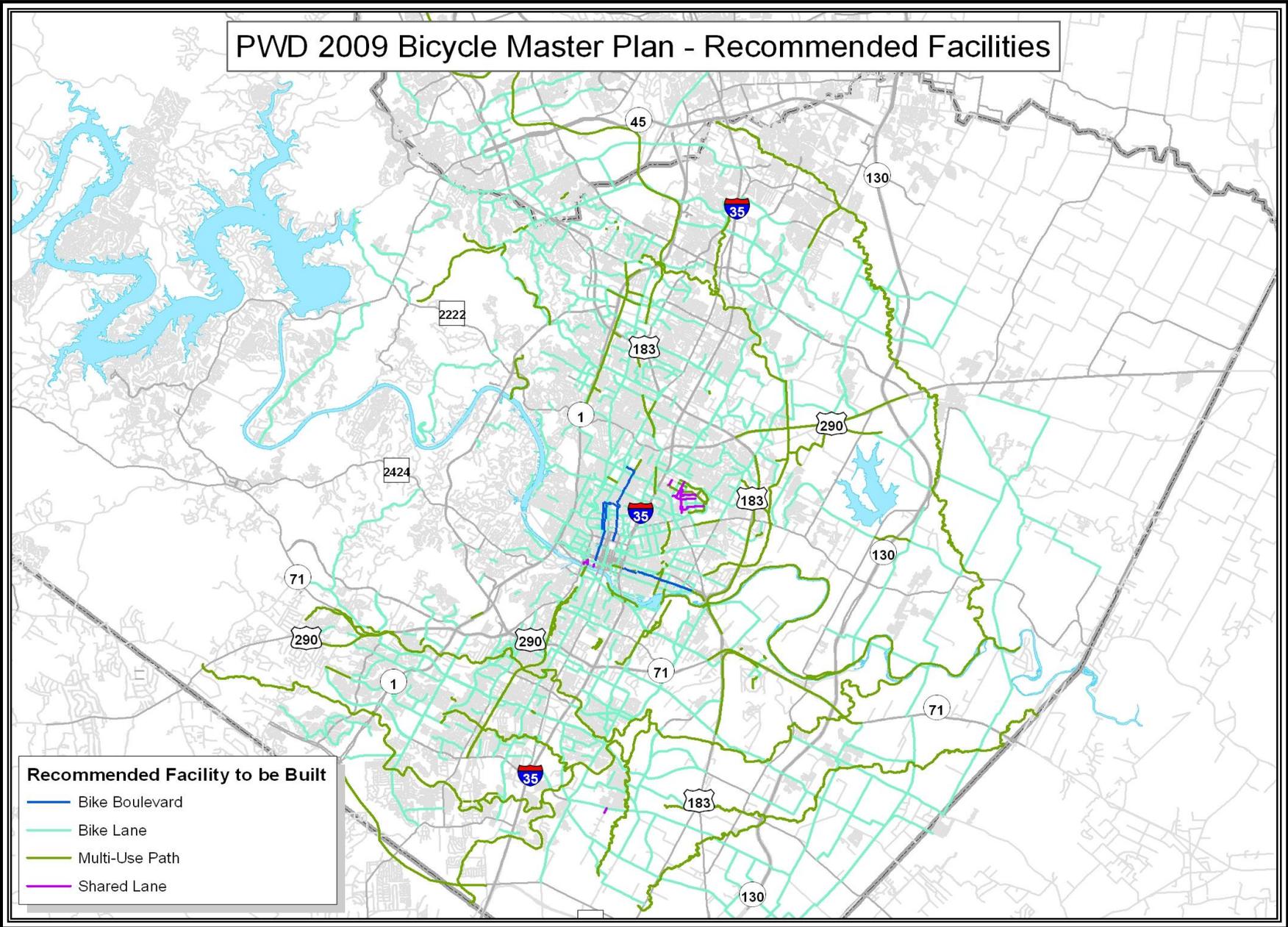
The completion status of pedestrian and bicycle facilities vary throughout the City, and are documented in the Sidewalk Master Plan and Bicycle Master Plan, respectively, as summarized in *Table 2 – Completion Status of Bicycle & Urban Trail Networks*.

Table 2: Completion Status of Bicycle & Urban Trail Networks			
Component	Existing (LM) ¹	Total Network (LM)	% In-Place
Bicycle Lanes	160	900	17.8
Multi-Use (Urban) Trails	50	350	14.3
Total	215	1310	16.4

Over the past two years, enhanced coordination between the bicycle and pavement maintenance programs has resulted in the addition of over 30 miles of new bicycle lanes. PWD has the goal of addressing 10% of the pavements in the City each year, so that the marking of bicycle facilities within the City’s ROW should be completed over the next decade. The bicycle network proposed in the Bicycle Master Plan is provided as *Figure 3: PWD 2009 Bicycle Master Plan – Recommended Facilities*.

¹ Bicycle and pedestrian facilities (sidewalks) are displayed as linear miles (LM) for consistency and ease in relating them to street frontages. These facilities vary in width throughout the City.

Figure 3: PWD 2009 Bicycle Master Plan – Recommended Facilities



9589.001 - City Wide Bikeways

This program is for new bicycle lane and signage projects identified utilizing criteria developed in the Bicycle Master Plan. Project implementation will be coordinated and included in the annual street maintenance schedule. Funding will be used for improvements that do not exist prior to street maintenance or are not included in the Street Reconstruction and Rehabilitation Plan. Improvements may include but are not limited to the following: protected bicycle lanes, cycle-tracks, new striping, bicycle facility stencils, signage, shared lane markings or other construction improvements which create or enhance on-street bicycle infrastructure.

Bicycle facilities are maintained either under the bridge maintenance program or as part of the pavement maintenance program, both of which are described in the respective sections of the 2011 Critical Infrastructure Needs Assessment. The maintenance of multi-use trail facilities has traditionally been the responsibility of the Parks and Recreation Department (PARD). However, PWD and PARD are developing a pilot program under which PWD’s pavement crews will provide maintenance to support to PARD for multi-use trails that are on parklands. Once further developed, a formal maintenance agreement will be developed and integrated into the Trails Master Plan, which is still being developed.

The pedestrian and bicycle networks contain substantial gaps, with only 14% of the trail network and 18% of the bicycle infrastructure being in-place. *Table 3* illustrates the previous capital investment in bicycle facilities and urban trails as well as the percentage of in-place assets per sector:

Table 3: Completion Status of Bicycle & Urban Trail Networks by Sector

SECTOR	Total Capital Investment for the 2000, 2006 & 2010 Bond Programs:		Total Existing Bicycle Lanes/Urban Trails (linear mile)	% of Total In-Place Assets per Sector	% of Total In-Place Assets Compared to Total Network
	Bicycle Facilities Cost (\$M)	Bicycle Lanes/Urban Trails (linear mile)			
North West	\$1.4	29	62.1	28.9	4.7
Central West	\$7.8	22.25	47.8	22.2	3.6
South West	\$5.1	27.0	61.7	28.7	4.7
North East	\$2.1	7.0	4.9	2.3	0.4
Central East	\$1.2	26.0	36.3	16.9	2.8
South East	\$1.0	5.0	15.4	7.2	1.8

9588.001 - City Wide Sidewalks, Ramps, Curbs and Gutters

This program is to develop sidewalk, curbs and gutter projects City-wide. Project prioritization will be determined based on the criteria contained within the Sidewalk Master Plan. Funding will be used for improvements that are not included in the Street Reconstruction and Rehabilitation Plan. An annual service plan will be developed which will be coordinated among Departments that will include objectives and needs identified in but are not limited to the following plans: The ADA Transition Plan, Sidewalk Master Plan, Downtown Plan, PDR Master Plans and Neighborhood Plans.

The pedestrian network contains substantial gaps, with only 40%-55% of the sidewalk network being in-place (*Figure 4: PWD Sidewalk Network – Absent Sidewalks*). Increased funding over the past several years have provided for accessibility improvements, however more than ten years will still be required just to address ADA Transition Plan requirements.

Sidewalk conditions within the City vary depending upon the age of the infrastructure. In the past, sidewalk repairs were accomplished using a complaint-driven approach in the absence of a condition database. PWD has initiated a cyclic inspection effort to provide a comprehensive sidewalk condition assessment. Once completed, PWD will be able to grade and prioritize work locations using a similar approach to that used in its pavement maintenance program.

The most significant challenges facing the City with regard to the sidewalk infrastructure concern improving accessibility and compliance, and compliance with the requirements of the American with Disabilities Act (ADA). Addressing accessibility to public facilities, obstructions, slopes, and the absence of curb ramps. *Table 4* shows the current completion status of the two options for the Pedestrian Network. *Table 5* depicts the recent capital investments and completion of the sidewalk network per sector.

Component		Existing (LM)	Total Network (LM)	% In-Place
Sidewalk ²	A	2,400	5,900	40.7
Sidewalk	B	2,400	4,325	55.5

² Per the Sidewalk Master Plan there are ~3,500 linear miles of absent sidewalk – approximately 10% or 350 linear miles of which are arterials. This assumes sidewalk on both sides off all streets (A). However, if only one side of residential and collector streets and both sides of arterials require sidewalks (B) the total of absent sidewalks is ~1,925 miles. It should be noted that these estimates were taken from aerial photographs and only 13% of the network was physically surveyed as part of the Sidewalk Master Plan.

Figure 4: PWD Sidewalk Network – Absent Sidewalks

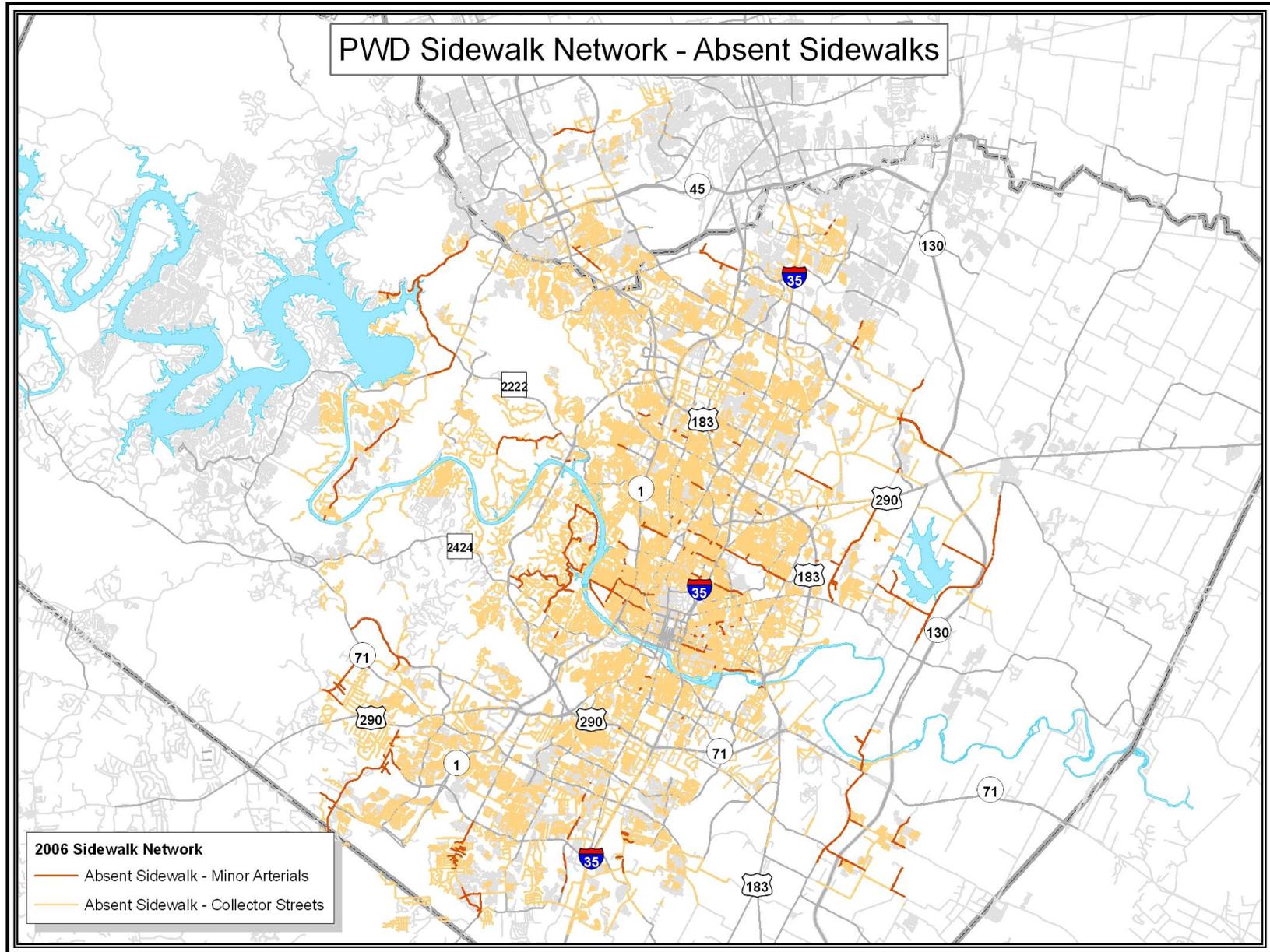


Table 5: Completion Status of the Sidewalk Network by Sector

SECTOR	Total Capital Investment for the 2000, 2006 & 2010 Bond Programs:		Total Existing Sidewalks (linear mile)	% of Total In-Place Assets per Sector	% of Total In-Place Assets Compared to Total Network (Component A)
	Sidewalks Cost (\$M)	Sidewalks (linear mile)			
North West	\$5.8	9.6	617.3	25.7	10.5
Central West	\$8.4	13.4	223.3	9.3	3.8
South West	\$3.1	5.2	664.0	27.7	11.3
North East	\$1.4	2.4	147.9	6.2	2.6
Central East	\$6.7	10.7	203.9	8.5	3.5
South East	\$5.9	9.9	222.6	9.3	3.8

9587.015 – Street Reconstruction Program

This program is for Street Reconstruction and Rehabilitation of Arterial, Residential, and Neighborhood Streets throughout the City. Projects designed with prior Bonds will be considered a priority for construction. Improvements may include but are not limited to the following: streets, sidewalks, curbs, gutters, ramps, bicycle lanes, traffic management devices, landscaping/trees and drainage improvements. Downtown Great Streets projects may include but are not limited to: 3rd Street, Colorado Street from 7th St to 10th St, Cesar Chavez Esplanade, and 8th Street from Congress to IH-35.

PWD conducts an evaluation on a rolling-three year basis and uses the following rating scheme to assess pavement conditions: A – Excellent; B - Good, C – Satisfactory, D - Poor, F – Failed (*Figure 5: PWD Street Condition Assessment Map*). Ratings account for both pavement condition and “ride-ability” of the street. The critical needs to improve and preserve the street/pavement infrastructure are drawn from the Transportation Fund (funded primarily by the TUF) for maintenance and repair and from General Obligation bond funds issued by the City for rehabilitation and reconstruction. Poor (D) or failed (F) streets are improved using partial depth rehabilitation and full depth reconstruction projects, and rehabilitation and reconstruction are funded primarily as capital projects and use voter-approved bond funds.

The 2011 Critical Needs Assessment originally identified approximately \$360 million in highest priority street reconstruction needs, potential coordination opportunities of D & F-rated streets with the Austin Water Utility, and substandard street reconstruction projects. Of that amount, approximately \$204 million was estimated for the preliminary

engineering, design, construction, and project management of new projects. Budgeting limitations allow the department to only address a fraction of the identified street network needs. Furthermore, unplanned demands also pull resources away from some of the planned demands. These unexpected circumstances can become priorities by their urgency or the new conditions they create which demand attention (i.e. utility participation, expensive high profile projects, real estate issues, high bid prices, and other major capital projects affecting the streets). In order to address the D and F-rated streets not included in the street reconstruction program, Public Works must draw from the Transportation Fund to maintain and repair the street by choosing from rehabilitation, overlay, or seal coat preventative maintenance types.

The Coordinated Asset Management Approach, as described earlier, is utilized by Public Works during ongoing coordination efforts with both the Austin Water Utility and Watershed Protection Department in order to identify overlapping critical infrastructure needs. The list of potential street reconstruction candidates is reviewed by various divisions responsible for water, wastewater, and storm drain infrastructure. Proposed street reconstruction candidates that address water, wastewater, and storm drain infrastructure priorities are examined further to compare completed scopes and design efforts as well as estimated construction schedules (*Table 6: Coordination Priority Matrix for proposed Street Reconstruction Projects*). If it is not possible to combine the identified needs into one project, the participants discuss the possibility of sequencing projects so that any given area is only affected for one period of time and not re-visited by multiple efforts. When the initial coordination efforts are complete, PWD will contact other City departments and divisions that might be interested in participating in prioritized street reconstruction projects. These divisions include, but are not limited to: Austin Energy; Austin Transportation Department (ATD) Traffic Engineering Division; ATD Right-of-Way Management; ATD Signs & Markings; ATD Signals; PWD Neighborhood Connectivity Division³ (NCD).

³ PWD NCD will work with the Planning and Development Review Department in order to provide one consolidated recommendation for sidewalks, bicycle facilities and urban trails that align with various Master and Neighborhood Plans.

Figure 5: Street Condition Assessment Map

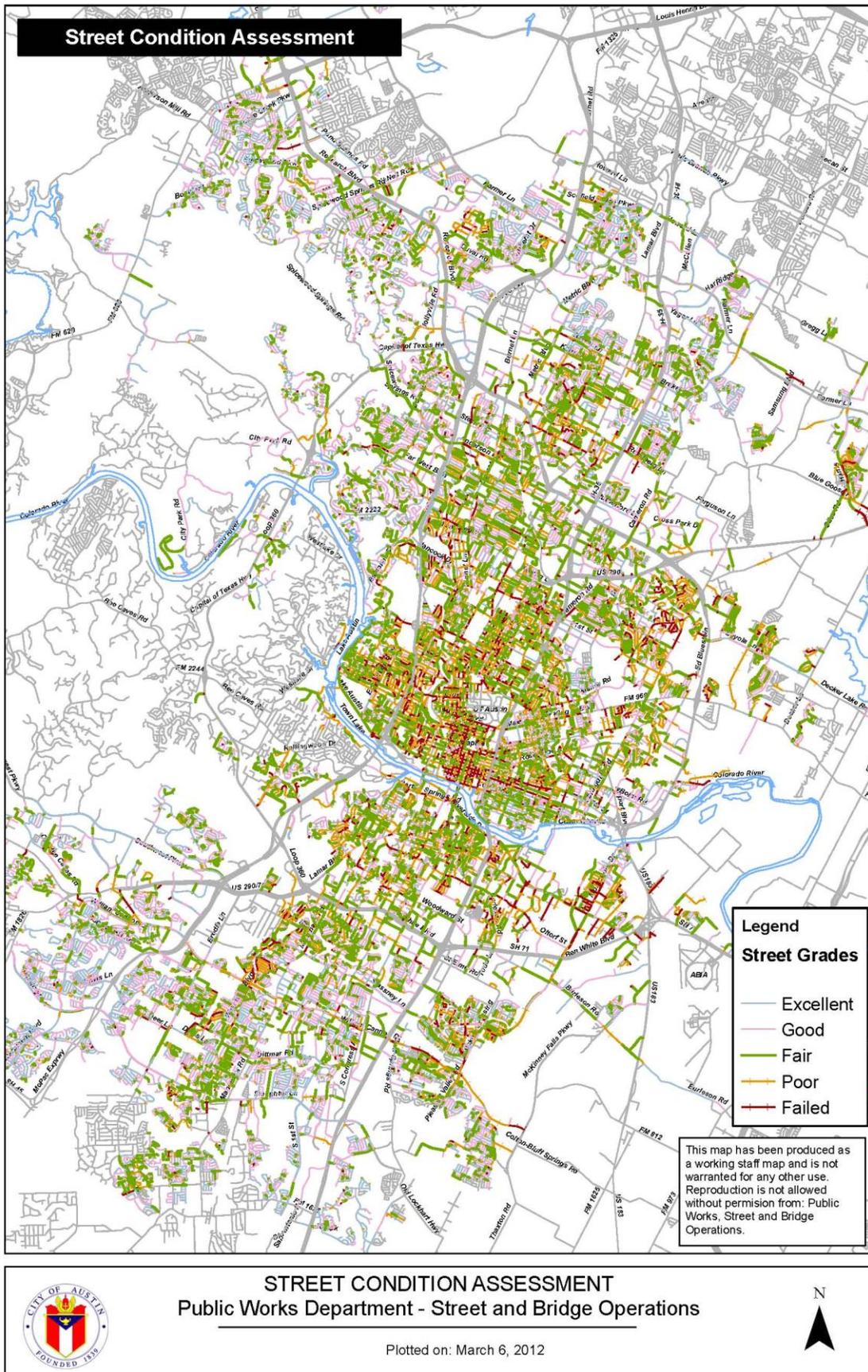


Table 6: Coordination Priority Matrix for proposed Street Reconstruction Projects

Coordination Area						
Mapsco Grid:						
Sub-Project ID:						
General Location Description:						
Activity Type	Department Priority	Has a plan or scope of work been developed? Describe:	Is a Preliminary Engineering Report being developed?	Current Project Phase, if applicable	Proposed Construction Start & End Dates	Department Area Name or ID
PWD - CIP						
PWD - Operations						
AWU - Water (Small Diameter)						
AWU - Water (Transmission Mains)						
AWU - Wastewater						
AWU - Reclaimed Water						
WPD - Localized Flooding						
WPD - Creek Flooding						
WPD - Erosion Control						
WPD - Water Quality						

9684.002 - Minor Bridges, Culverts and Structures

This program is to design and implement minor bridge and retaining wall repairs throughout the City. Funding will be used for improvements that cannot be addressed through the annual maintenance plan. Proposed improvements, if funded, may include but are not limited to the following: bridge repair, retaining walls, and any type of repair necessary to improve on current infrastructure.

Texas Department of Transportation (TxDOT) conducts condition assessments of all 441 major bridges under City responsibility on a bi-annual basis, and all but one major bridge has a rating of 'good' or better. The remaining bridge, Emmett Shelton, is rated as fair. There are also approximately another 930 culverts and pipes that fall outside the bi-annual inspection routine as minor structures less than 20 feet across. All major structures are given a Sufficiency Rating (SR) which roughly assesses its condition and adequacy. Furthermore, individual ratings for specific bridge elements are also used to determine work that is needed.

Bridges and culverts are critical locations in the roadway system which cannot be structurally unsound, deficient in safety, or have damage that is left unaddressed for any substantial length of time. Additionally, railings and other protection systems may be obsolete not meeting current standards. These structures form critical links within the roadway system having limited or no alternative routes. They would often require very long detours if closed or posted with any limits. The City's major bridges are an average of 39 years old. This often requires rather quick response to assure safety and continuity of service.

The Minor Bridge and Culvert fund is a traditional funding mechanism for moderate sized capital intensive projects. There has been a similar program in at least the last three major street bond programs. The annual bridge maintenance contract handles routine maintenance and repairs to the major bridge structures and all minor culverts and pipes crossing the right of way under the street. However, larger capital replacement and enhancements to smaller structures would quickly deplete available annual maintenance contract funding.

Minor Bridge and Culvert funding has been used as highly leveraged funding with TxDOT Off-System projects in a 90%-10% split. For example: New Bridges on Nixon Lane, Old Manor Rd, North Loop Blvd, and North Bluff Dr.

Critical projects include the replacements of the Emmett Shelton bridge on Red Bud Trail over Lady Bird Lake, the William Cannon Drive bridge, the Barton Springs Road bridge over Barton Creek, and the Delwau Lane bridge over Boggy Creek.