

March 30, 2016



## MGO 3.14 Review

### *City Engineering*

*Robert Phillips, P.E.*

*City Engineer*

### *Traffic Engineering & Parking*

*David Dryer, P.E.*

*City Traffic Engineer & Parking*



Rob Phillips, P.E.

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David Dryer, P.E. CAPP

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# CE & TE

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Are...

1. Frontline service delivery agencies—two of the City's core Public Works agencies
2. We are considered essential emergency agencies
3. TE is largely a maintenance agency, everything that is necessary to operate the surface transportation system
4. CE is the construction arm of the City
5. TE is one component in the design of streets: maintain, replace & upgrade--street lights, traffic signals, pavement markings, signing, parking system management etc.
6. CE design/builds roadway surface, sewer and water, horiz & vertical geometry
7. With our partners in Planning & Metro we plan, design and build your public works projects.



# TE/Parking maintains and operates?

Emergency and PW Communications

Signing and marking of Bike Paths      300+ Traffic Signals      911 Equip.  
Safety studies    Safety Projects      Bicycle Operations      RP3 Permits  
Pavement Markings      Access Mgt      Data collection/analysis  
Neighborhood Plan/Design      Traffic Control      Fiber Optic Networks  
Permits      Reconstruction      Mad Metro      1400 parking meters  
ITS components      Parking Ramps      Work Zones      School Zones  
Pedestrian operations      Plan and Development Review      Traffic Cameras  
60,00+ Signs      13,000+ Street Lights      Traffic Calming      Roundabouts  
Site design      Radio Towers  
Special events

....and much more.



# Who is TE and Parking?

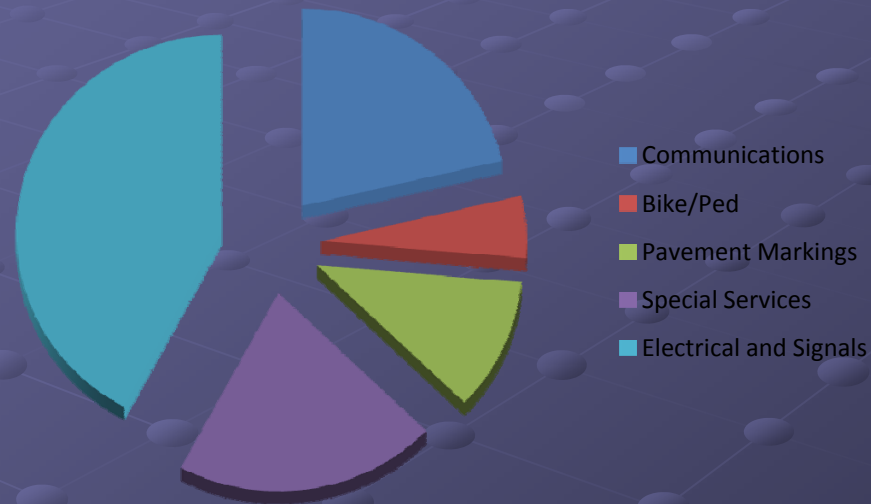
- 132 Employees

- 11 Engineers

- 121 Field, Maintenance & Support Employees



# How is TE funded?

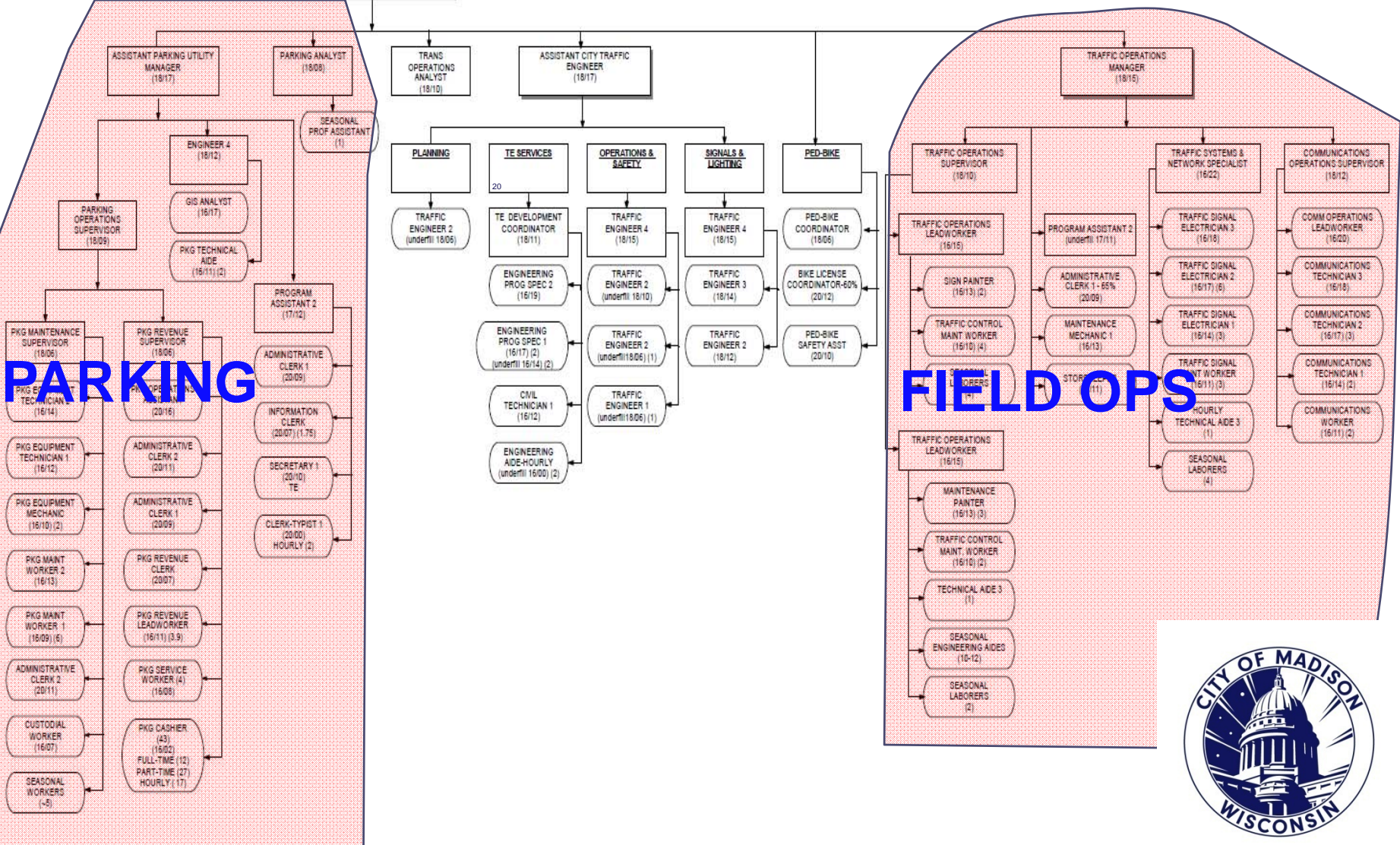


\$5,655,264 2016 Op Budget



**TRAFFIC ENGINEERING  
AND PARKING UTILITY  
ORGANIZATIONAL CHART**  
04/27/15

**CITY TRAFFIC ENGINEERING AND PARKING**  
CITY TRAFFIC ENGINEER  
& PARKING MANAGER  
(21/21)



**PARKING**

**FIELD OPS**



# How is TE/Parking organized?

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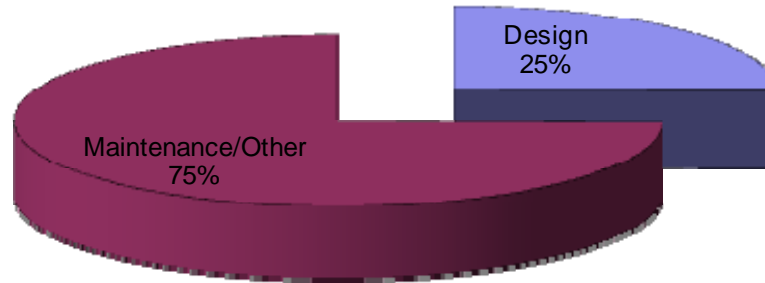
## Eight Sections:

- Administration
- Parking
- Communications
- Electrical
- Field Operations and Maintenance
- Operations and Safety
- Ped/Bike
- Planning and Design



# How are we organized?

TE FTEs by  
Maintenance & Design





# CE maintains and operates?

Design new streets      Design Storm Sewers and Sanitary Sewers.  
Clean out Sanitary Sewers      Maintain greenways and ponds  
Erosion Control      Design bike paths      Transportation Improvement Program  
Inspect construction      Emergency response      Asset management  
Adopt a median program      Median Landscaping      Bid Public Works Projects  
Permits      Street Reconstruction      Closed landfills  
Sewer Capacity Studies      Sewer Capacity Studies      Rain gardens      Land Surveys  
City Addressing      Plan and Development Review      Utility Permits  
Repair sidewalks      Board of Public Works      Winter maintenance of bike paths  
Brownfields assessment      Design City Facilities      Televiser sewers  
Provide custodial services      Maintain City Official Map  
....and much more.



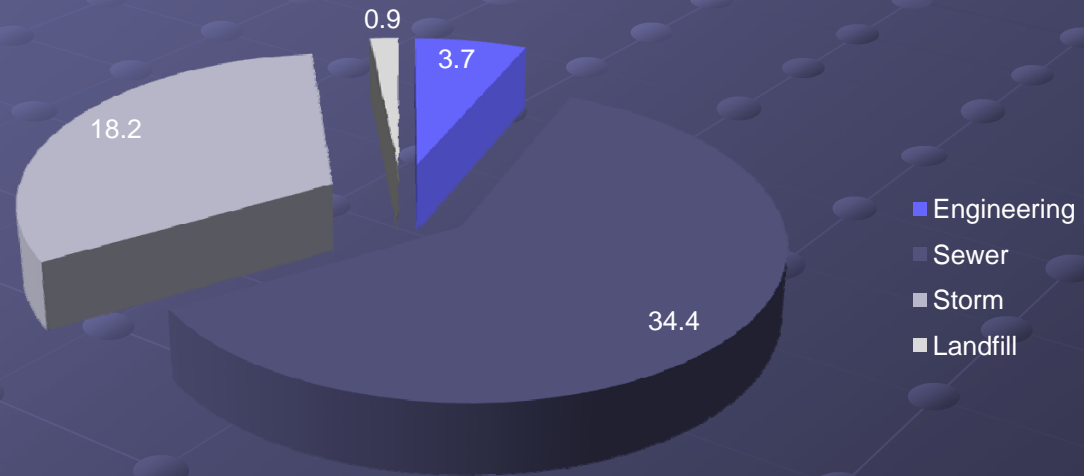
# City Engineering Sections

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- Street, Bridges, Bike Paths and Sidewalks
- Mapping and GIS
- Environmental and Closed Landfills
- Storm and Sanitary Sewer Design
- City Facilities and Sustainability
- Construction
- Operations



# How is CE funded?



\$57.2 M 2016 Op Budget



# Engineering Section Involvement in Transportation

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- Streets Bridges Bike Paths and  
Sidewalks Section -

- Programming
- Coordination
- Public Involvement
- Civil Engineering
- Assembly of Plans and Specifications



# Engineering Section Involvement in Transportation

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## • Mapping and GIS Section -

- Surveys
- Determining existing right of way
- Acquisition of new right of way
- Official Map



# Engineering Section Involvement in Transportation

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- Environmental and closed landfills Section -
  - Contaminated soils in right of ways



# Engineering Section Involvement in Transportation

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## •Storm and Sanitary Design Section -

- Permitting
- Pavement drainage
- Storm water management
  - Pollution reduction
  - Infiltration
  - Detention
- Median landscaping contracts
- Adopt a median program



# Engineering Section Involvement in Transportation

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## • Construction Section-

- Prequalification of contractors
- Bidding
- Construction inspection (along with other departments)
- Construction oversight





# Engineering Section Involvement in Transportation

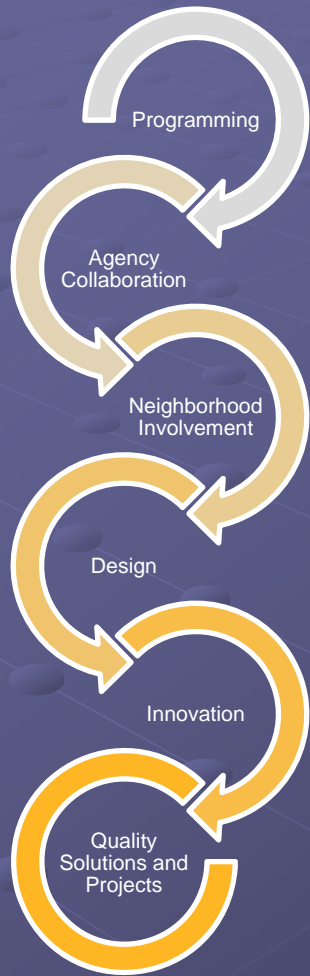
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## • Operations Section-

- Maintenance of pavement drainage (storm sewer, detention ponds, etc)
- Plowing of certain Bike Paths
- Snow removal at certain bus stops and sidewalks
- Maintenance of landscaping (certain areas)



# Transportation Solutions Exceptional Neighborhoods



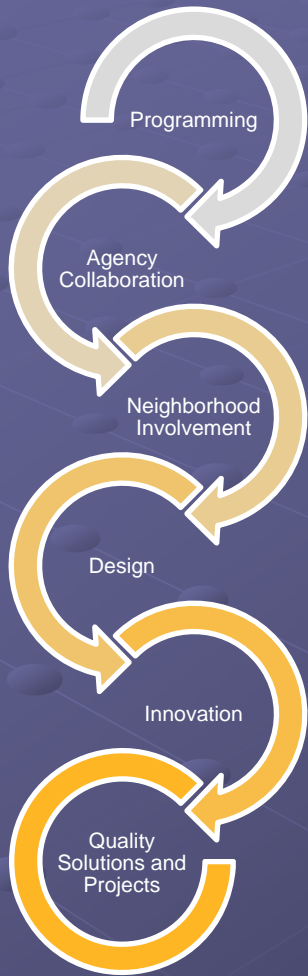
The vision for the City of Madison is to be a safe and healthy place to live, work learn and play....

# Transportation Solutions Exceptional Neighborhoods

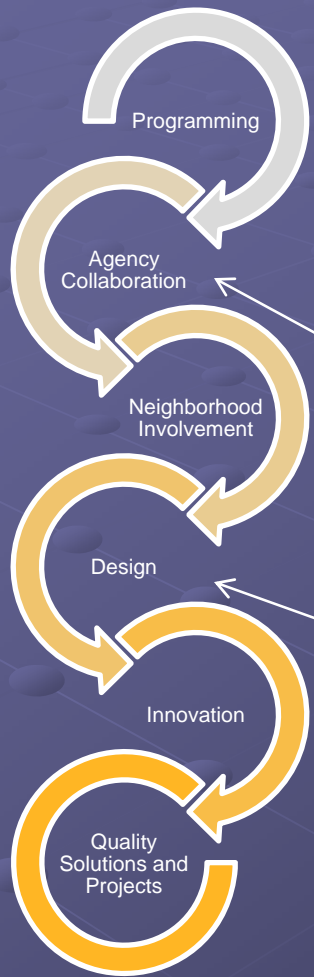


**What do we strive to do?**  
**Implement transportation programs and projects that enhance mobility and our neighborhoods.**

# Transportation Solutions Exceptional Neighborhoods



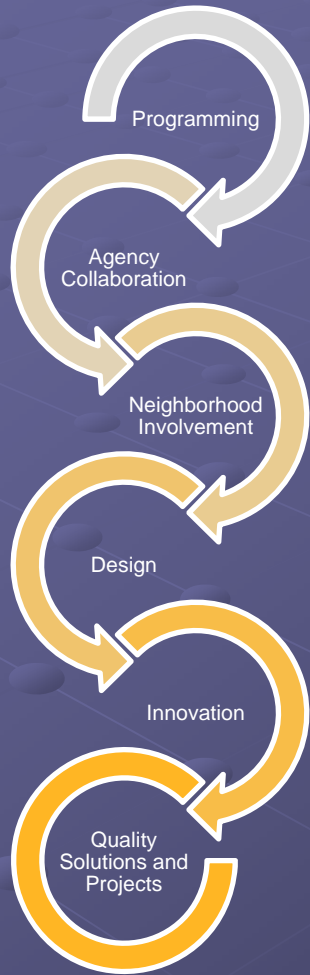
# Transportation Solutions Exceptional Neighborhoods



Quality Solutions and Projects are accomplished by:

- Programming
- Agency Collaboration
- Neighborhood Involvement
- Quality Design
- Innovation

# Transportation Solutions Exceptional Neighborhoods



Transportation  
Programs that  
shape our City













# Streets

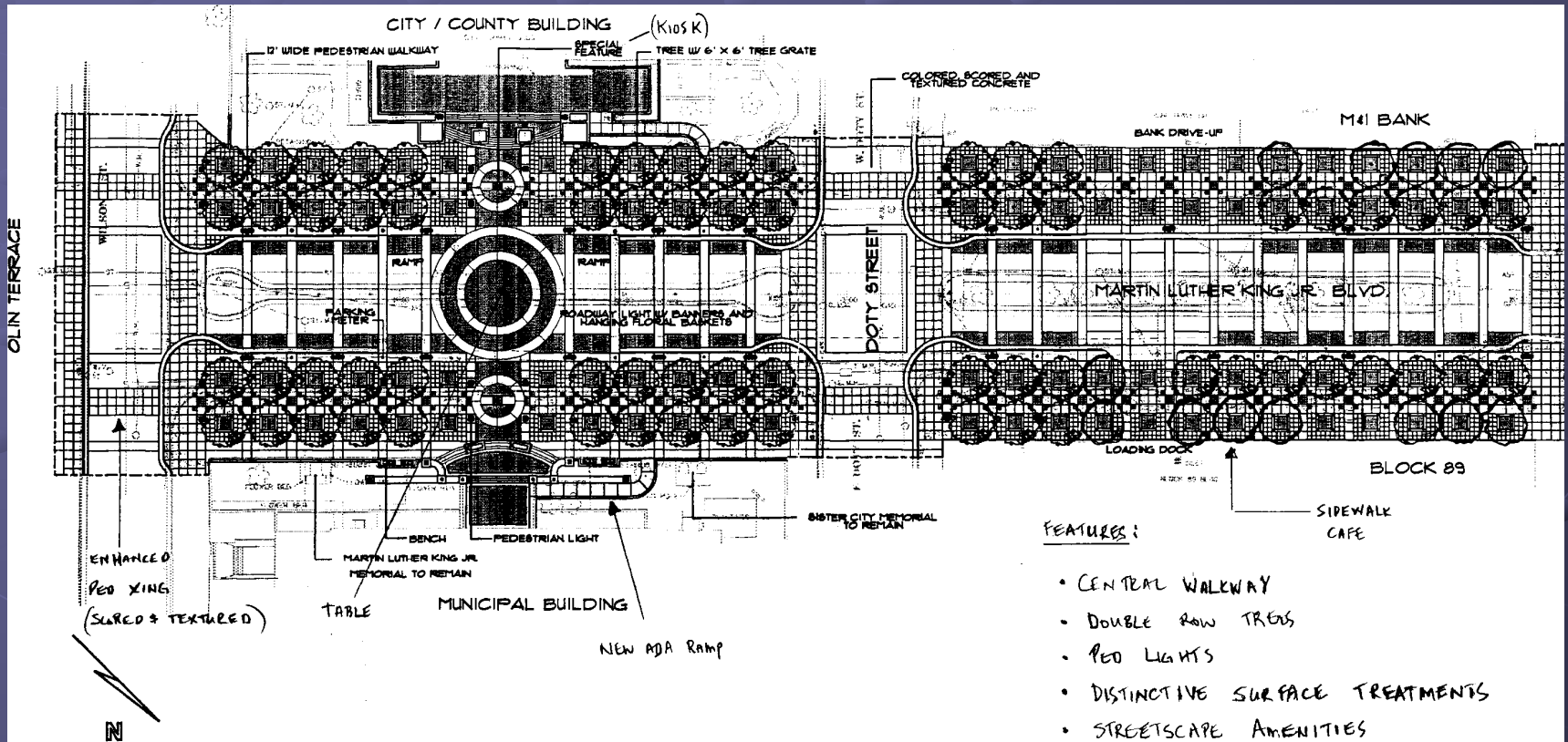


Regent St at West High



# Street Reconstruction

## MLK Jr. Blvd

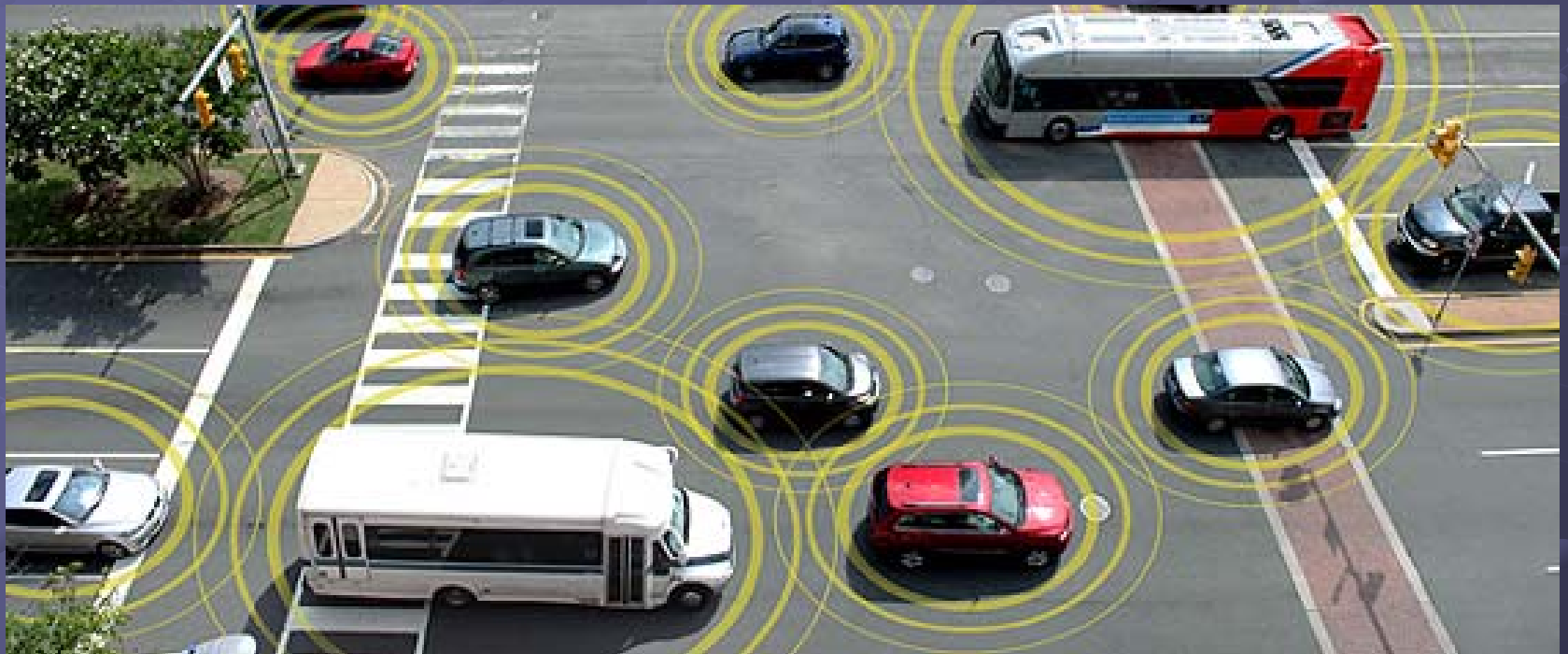


# Street Monitoring & Operation



# Intelligent Transportation Systems (ITS)

## Vehicle 2 Vehicle Communications (V2V)



Dedicated Short Range Communications

# Intelligent Transportation Systems (ITS)

## USDOT's Vision for a Smart City

To assist cities, the USDOT identified 12 vision elements that are intended to provide a framework for applicants to consider in the development of a city's proposed demonstration without making each item a requirement for award.

### Technology Elements (*Highest Priority*)



### Innovative Approaches to Urban Transportation Elements (*High Priority*)



### Smart City Elements (*Priority*)



# Intelligent Transportation Systems (ITS)

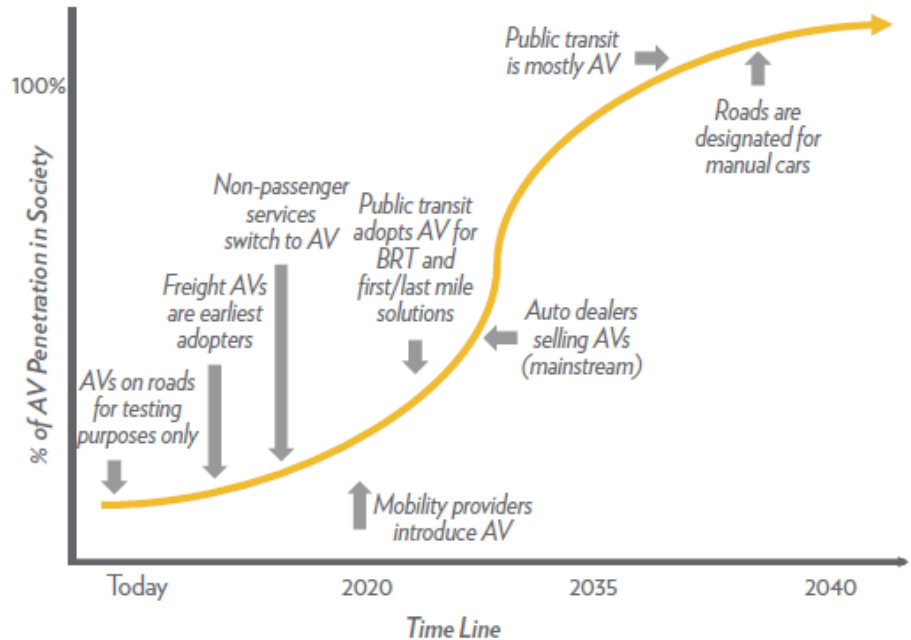
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Vehicle 2 Vehicle Communications (V2V)





# Intelligent Transportation Systems (ITS)



Note: "Manual cars" refer to vehicles that require drivers (today's cars).

# Traffic Calming

Improve  
Livability



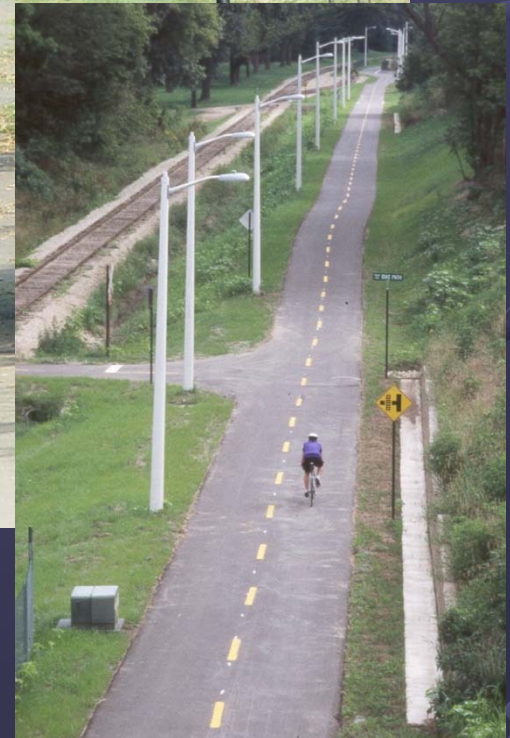
# Bicycle



Source:Capital Newspapers



# Bicycle



# The Missing Link

## A Bicycle/Pedestrian Corridor for the Heart of Madison



A Dedicated & Paved  
Bicycle Route




est,  
ight-  
rimarily  
ity  
etween  
errace,  
arks.

- Provides Commuter access to the Downtown and the University.
- From anywhere in central Madison, a dedicated trail to the Military Ridge and Capitol City Trails.

- A winter alternative to dangerous slush covered streets.
- Links major University athletic facilities.

 Existing  
 Proposed  
 Alternatives

 U.W. Athletic Facilities

John Coleman @ LICGF Oct. 2000  
 colemanj@calshp.cab.wisc.edu  
 608-256-8164

# Bicycle



# Bicycle



# Bicycle





# Pedestrian



# Pedestrian

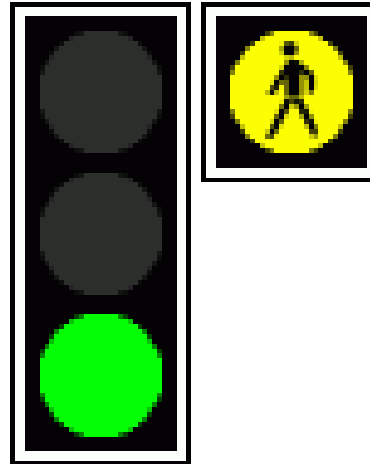
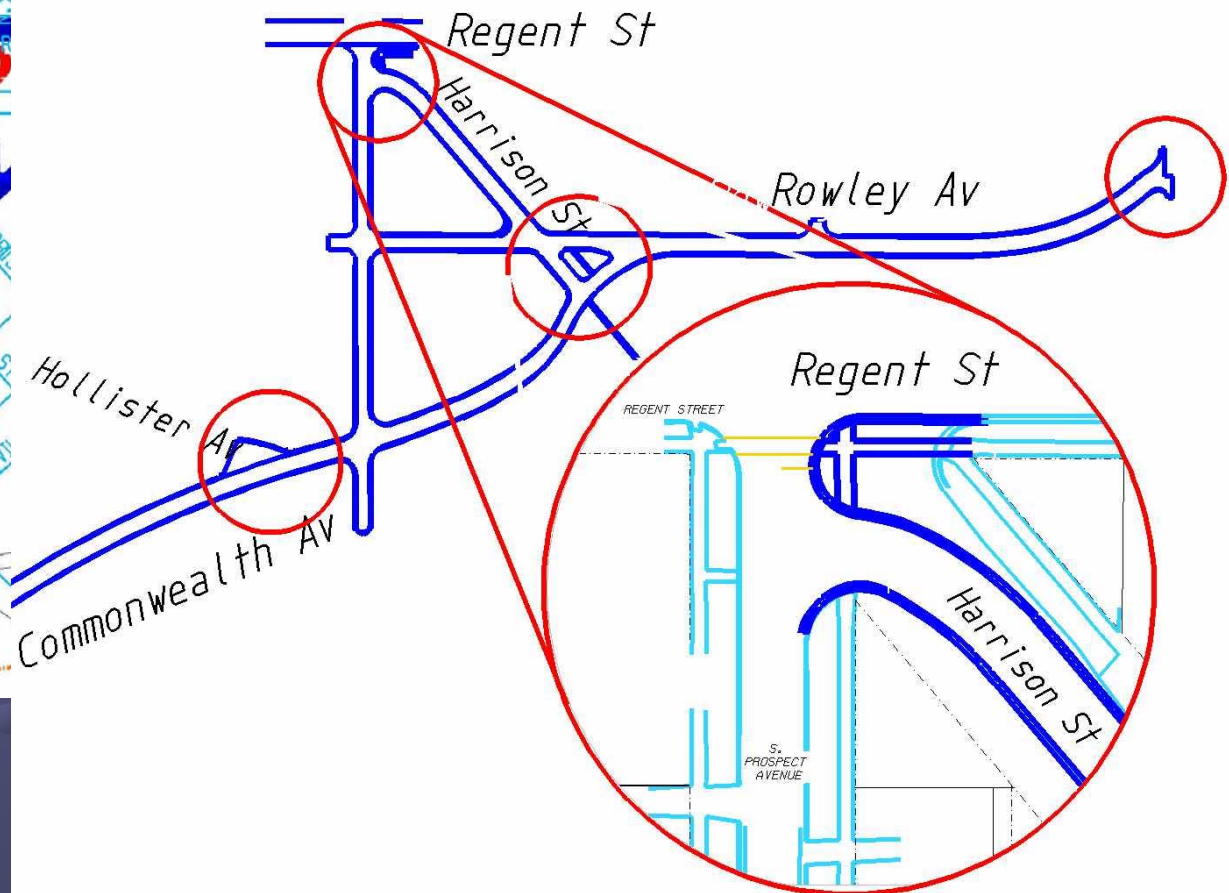


Figure 7

German pedestrian warning signal



# Pedestrian



# Pedestrian





**Blair at Mifflin  
Pedestrian Hybrid Beacon  
Mifflin Street bicyclist & pedestrian signals**



# Pedestrian



# Pedestrian



# Pedestrian/Bike



English US



SS-22 State St. North Side

From May 29, 2015 to March 18, 2016

Yesterday

**1,589,437** Counts

**3,113** Counts

## Period

Begin

05/29/2015

End

03/17/2016

Day

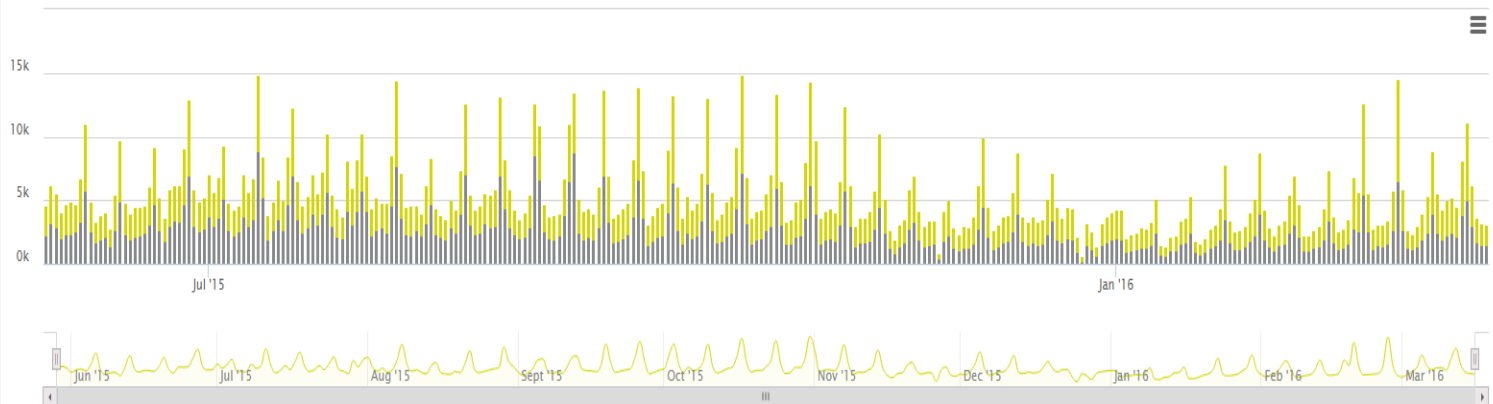
Week

Month

Key Numbers

## Display

Direction

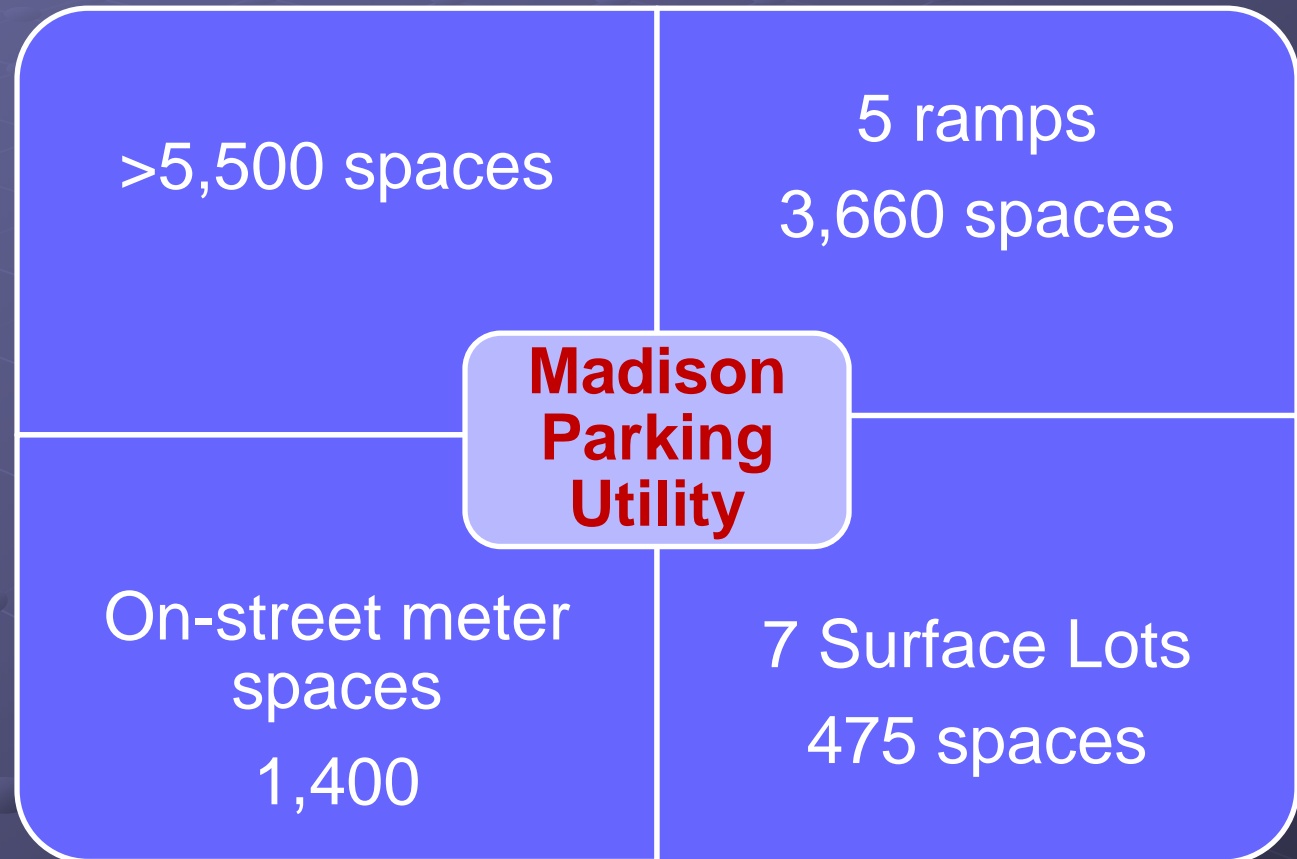




# Parking



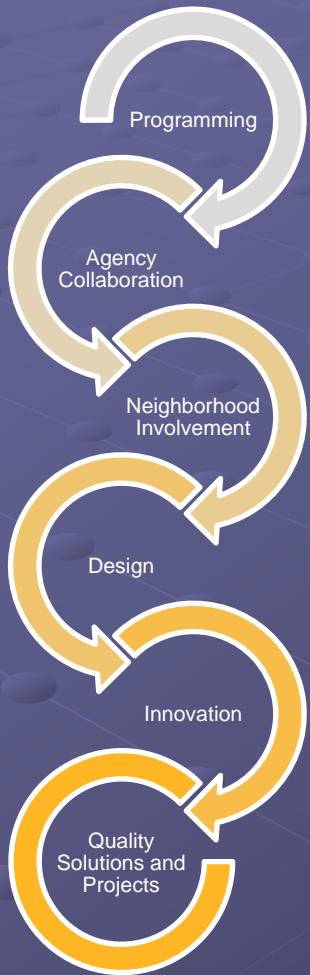
# Parking



# Public Pass. Vehicles

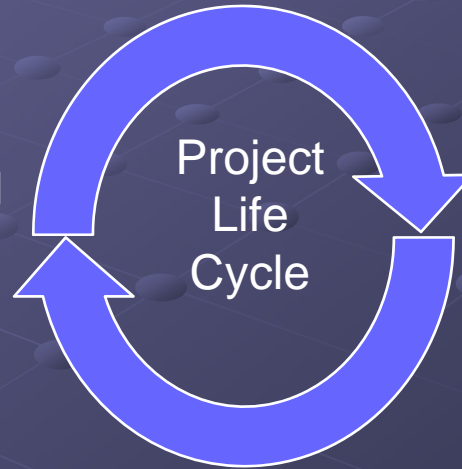


# Transportation Solutions Exceptional Neighborhoods



Programming

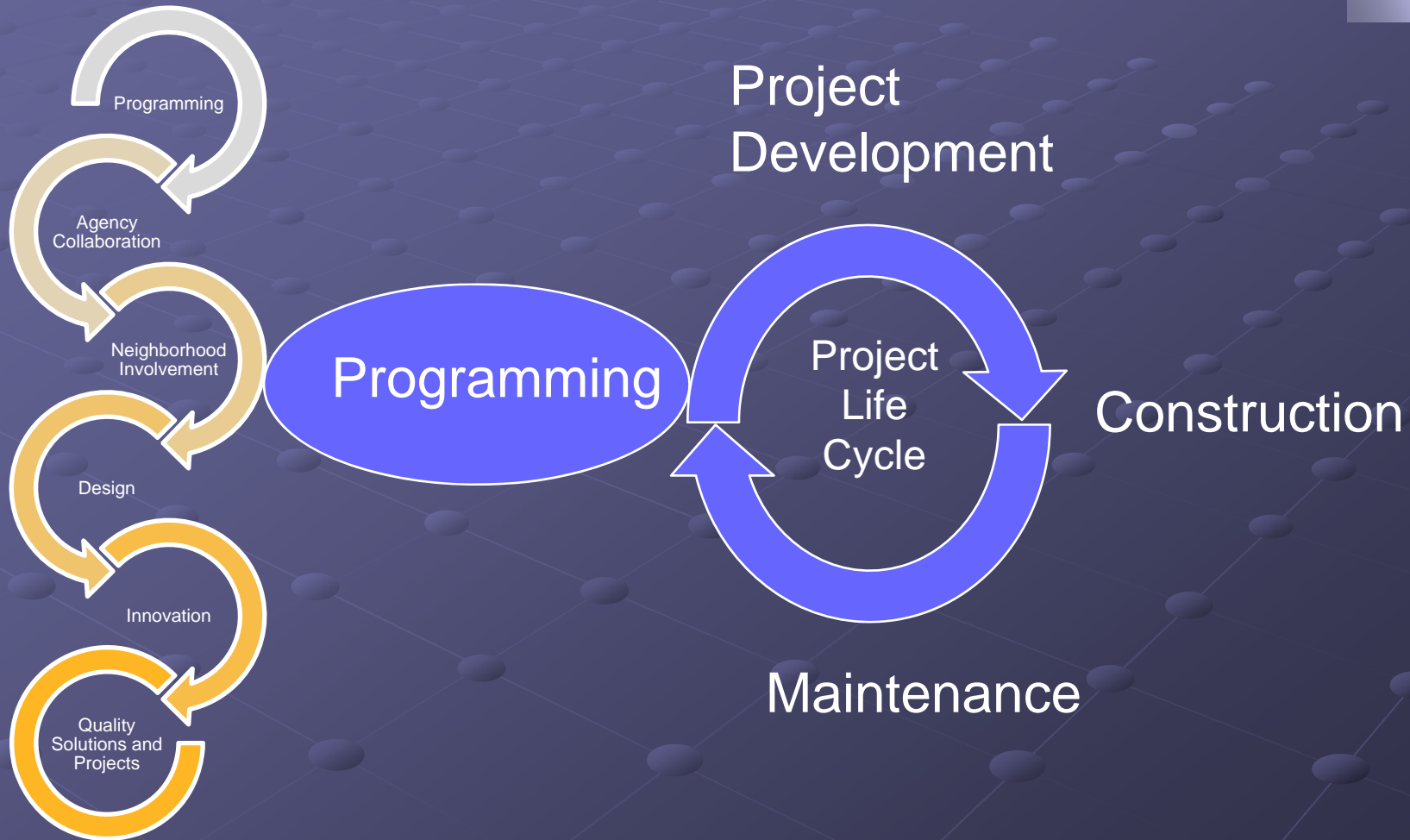
Project  
Development



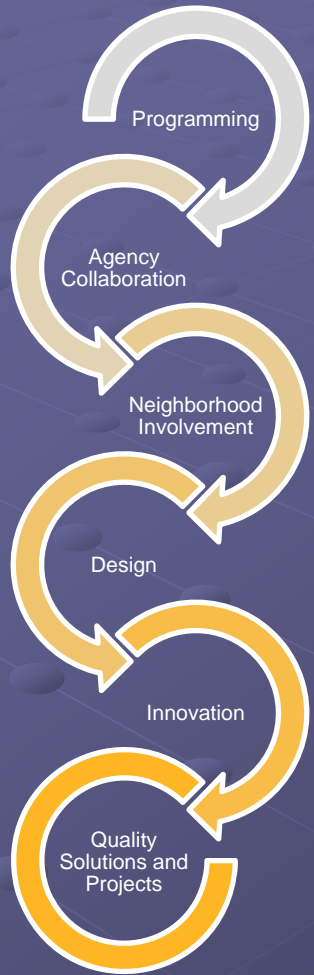
Construction

Maintenance

# Transportation Solutions Exceptional Neighborhoods



# Programming



TIP = BUDGET

Transportation

Adopted

Improvement =

Capital

Program

Budget

# Programming



## How does a project get into the TIP?

### TRANSPORTATION CORRIDORS: IMPROVEMENTS TO EAST WASHINGTON AVENUE AND VEHICULAR AND PEDESTRIAN MOVEMENT IMPROVEMENTS

#### EAST WASHINGTON AVENUE

- ✓ Enhance pedestrian and bicycle networks that improve the safety and connections to frequently traveled locations.

#### Neighborhood Objectives, Issues, and Strategies

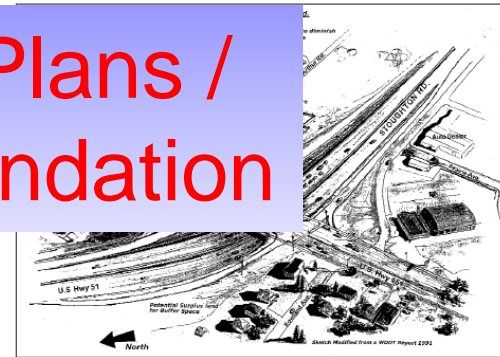
The Carpenter-Hawthorne-Ridgeway-Sycamore-Truax Neighborhood has identified three major public improvements that would enhance the stretch of East Washington Avenue from Highway 30 to North Stoughton Road:

## Neighborhood Plans / NRT Recommendation

neighborhood because it serves as the spine uniting the areas neighborhood associations and provides local gathering and shopping areas for its residents. Public and private investment in the East Washington Avenue corridor, especially those that improve the movement of pedestrians, will enhance the livability of the neighborhood.

#### Neighborhood Goals

- ✓ Enhance the aesthetics of East Washington Avenue by installing streetscape amenities, approving high design standards for public infrastructure improvements, and encouraging private enterprises to upgrade their properties to showcase this major gateway into Madison.

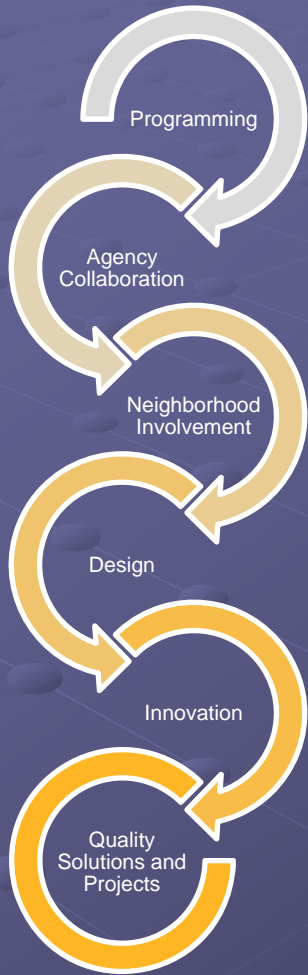


Map 14: Proposed East Washington-North Stoughton Road diamond interchange

- ✓ Continue to explore the likelihood of a North Stoughton Road underpass at the intersection of East Washington Avenue and North Stoughton Road. Construction of an underpass would facilitate safe pedestrian crossing at the intersection as well as improve the overall appearance of this six-lane intersection (see Map 14).

# Programming

How does a project get into the TIP?



**Known Safety Problem**





# Programming

How does a project get into the TIP?



**Facilitate Development**



# Programming

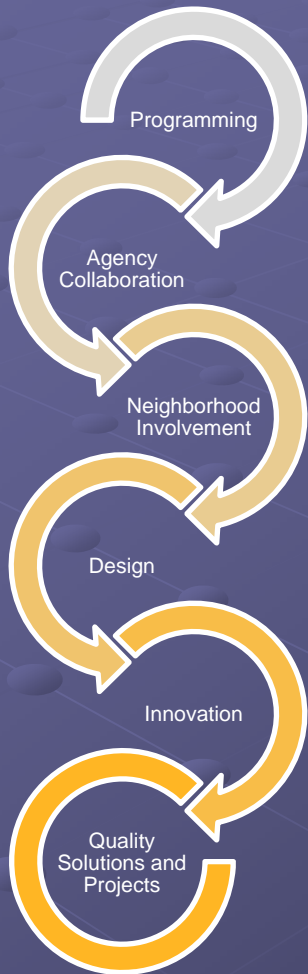


How does a project get into the TIP?

**Traffic Congestion Problem**



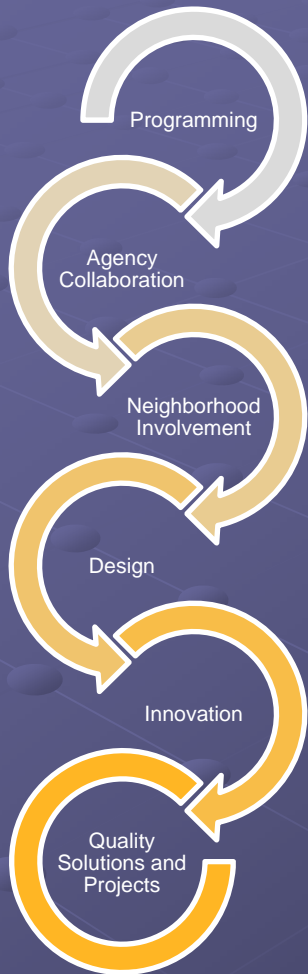
# Programming



How does a project get into the TIP?



# Programming

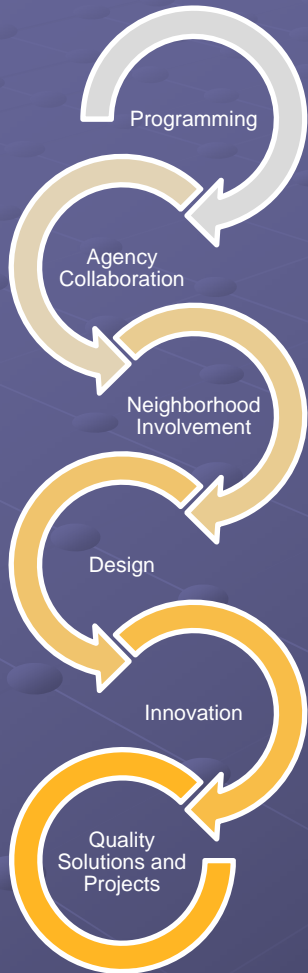


What is the number one reason a project gets into the TIP?

# Programming



# Programming



## How does a project get into the TIP?

- Neighborhood Plan / NRT Recommendation
- Known safety problem
- Facilitate Development
- Traffic congestion problem
- Utility failure or maintenance problem
- Pavement Condition

Projects often hit more than one

# Programming

The Draft TIP is brought to various groups for comments



- PBMVC
- LRTPC
- BPW
- Small Business Advisory Council
- BID
- CC

Comments are used to finalize TIP

# Programming

The TIP is reviewed by other agencies.

- Engineering
- Traffic Engineering
- Planning
- Metro

Comments are used to finalize TIP





# Programming



The Draft TIP is submitted to Finance in the form of the Capital Budget

		<b>McKee Road (CTH PD)</b>	10245
GO	\$ 1,000,000	This project provides funding to	
Other		- roadway with bike lanes and sidewalk	
		proposed. The project budget	
	<u>\$ 1,000,000</u>	east of CTH M at Meriter Way	
		the construction year is 2017.	
		<b>McKenna Boulevard Reconstruction</b>	
GO	\$ 1,900,000	This project will improve safety by	
Other		- median to assist pedestrian crossings	
		project limits are from Morraine View to	
	<u>\$ 1,900,000</u>	Schroeder Road to Pilgrim Road. 2016 construction will include resurfacing	
		Hammersley Road to Schroeder Road, including the construction of a median from Morraine View to	
		Hammersley Road. 2017 construction will include resurfacing of McKenna Boulevard from	
		Hammersley Road to Pilgrim Road.	
		<b>Mineral Point Road (West Beltline to High Point)</b>	Project No. 11131
GO	\$ 130,000	This project will replace the existing pavement and replace sidewalk as necessary. The project limits	
Other		- are the West Beltline Highway to High Point Road. The construction year is 2020.	
	<u>\$ 130,000</u>		

Ultimately approved by Mayor and Common Council

# Programming

2016 Major  
Street Budget

24 Projects  
and Programs

\$33.3 Million

Agency Name: Engineering - Major Streets

Project Name	Executive
1 Anderson Street (Wright to Stoughton)	-
2 Atwood Ave (Fair Oaks to Cottage Grove)	217,500
3 Atwood Avenue (Schenks Corners)	-
4 Atwood Avenue (Utility Underground)	-
5 Bridge Repair	50,000
6 Buckeye Rd Improvements	165,000
7 Capitol Square Pavement Replacement	1,695,000
8 City View Drive	2,760,000
9 Cottage Grove Road	530,000
10 CTH M (CTH PD Area)	3,000,000
11 CTH M (Midtown Road Area)	3,000,000
12 Darbo Webb Connection	-
13 Gammon Road, North	-
14 Gammon Road, South	-
15 High Point Rd Bridge Over Beltline	1,150,000
16 Jeffy Trail	510,000
17 John Nolen Dr / Blair St Corridor Study	100,000
18 Johnson Street, East Reconstruction (Baldwin)	80,000
19 Johnson Street, East (Undergrounding Utilities)	750,000
20 Martin Luther King Jr Boulevard	-
21 McKee Road (CTH PD)	1,000,000
22 McKenna Boulevard Reconstruction	2,650,000
23 Mineral Point Road (Beltline to High Point)	130,000
24 Mineral Point Road (S Point to Pleasant View)	-
25 Monroe Street	200,000
26 Neighborhood Traffic Management	100,000
27 Outer Capitol Loop Southeast	-
28 Park Street, South (Olin to Railroad)	-
29 Park St, S (W Wash to Olin, RR to Badger)	-
30 Pavement Management	5,959,370
31 Pleasant View Road	200,000
32 Railroad Crossings & Quiet Zones	420,000
33 Reconstruction Streets	2,184,520
34 Royster Clark Development Phase 2	3,770,000
35 Rural To Urban Streets	2,676,925
36 University Ave (Shorewood to Univ Bay)	-
37 Washington Avenue, East Streetscape	-
38 Washington Ave, W (Regent to Bedford)	-
39 Wilson/Williamson St (Franklin to Blount)	-
<b>Total</b>	<b>\$ 33,298,315</b>

# Major Streets Through 2021

## Agency Name: Engineering - Major Streets

Project	Reauth	2016	2017	2018	2019	2020	2021
1 Anderson Street (Wright to Stoughton)	-	-	-	-	-	440,000	-
2 Atwood Ave (Fair Oaks to Cottage Grove)	-	217,500	652,500	-	500,000	2,144,000	1,336,000
3 Atwood Avenue (Schenks Corners)	-	-	-	2,420,000	-	-	-
4 Atwood Avenue (Utility Underground)	-	400,000	-	-	-	-	-
5 Bridge Repair	-	50,000	130,000	140,000	150,000	160,000	170,000
6 Buckeye Road	-	165,000	200,000	1,035,000	-	-	-
7 Capitol Square Pavement Replacement	-	1,695,000	1,695,000	-	-	-	-
8 City View Drive	-	2,760,000	-	-	-	-	-
9 Cottage Grove Road	306,000	224,000	1,000,000	2,640,000	-	-	-
10 CTH M (CTH PD Area)	1,500,000	1,500,000	8,300,000	-	-	-	-
11 CTH M (Midtown Road Area)	3,000,000	-	6,400,000	-	-	-	-
12 Darbo Webb Connection	-	-	-	-	780,000	-	-
13 Gammon Road, North	-	-	-	-	-	-	50,000
14 Gammon Road, South	-	-	260,000	2,550,000	-	-	-
15 High Point Road Bridge Over Beltline	-	1,150,000	-	-	-	-	-
16 Jeffy Trail	-	-	510,000	-	-	-	-
17 John Nolen Dr / Blair St Corridor Study	-	100,000	-	-	-	-	-
18 Johnson St, East Reconstruction (Baldwin)	-	80,000	-	200,000	2,185,000	-	-
19 Johnson St, East (Underground Utilities)	-	750,000	750,000	-	-	-	-
20 Martin Luther King Jr Boulevard	-	-	-	-	2,000,000	-	-
21 McKee Road (CTH PD)	-	1,000,000	6,080,000	-	-	-	-
22 McKenna Boulevard Reconstruction	-	1,900,000	750,000	-	-	-	-
23 Mineral Point Rd (Beltline to High Point)	-	130,000	-	-	-	665,000	-
24 Mineral Pt Rd (S Point to Pleasant View)	-	-	270,000	270,000	-	-	-
25 Monroe Street	-	150,000	600,000	10,090,000	-	-	-
26 Neighborhood Traffic Management	-	300,000	310,000	320,000	330,000	340,000	350,000
27 Outer Capitol Loop Southeast	-	-	1,770,000	-	-	-	-
28 Park Street, South (Olin to Railroad)	-	-	-	300,000	-	3,005,000	-
29 Park St, S (W Wash to Olin, RR to Badger)	-	-	-	-	3,090,000	-	-
30 Pavement Management	700,000	5,259,370	6,375,000	11,025,000	11,325,000	11,625,000	11,925,000
31 Pleasant View Road	88,000	112,000	200,000	785,000	1,060,000	-	-
32 Railroad Crossings & Quiet Zones	18,000	402,000	1,200,000	1,020,000	130,000	140,000	150,000
33 Reconstruction Streets	600,000	1,584,520	2,815,000	4,815,000	4,815,000	4,815,000	4,815,000
34 Royster Clark Development Phase 2	2,658,000	1,112,000	-	-	-	-	-
35 Rural To Urban Streets	-	4,026,925	4,400,000	4,600,000	4,800,000	5,000,000	5,200,000
36 University Ave (Shorewood to Univ Bay)	-	-	270,000	270,000	-	-	-
37 Washington Avenue, East Streetscape	-	-	-	-	-	-	200,000
38 Washington Ave, W (Regent to Bedford)	-	-	-	1,950,000	-	-	-
39 Wilson/Williamson St (Franklin to Blount)	-	-	-	1,650,000	-	-	-
<b>Total</b>	<b>\$ 8,870,000</b>	<b>\$ 25,068,315</b>	<b>\$ 44,937,500</b>	<b>\$ 46,080,000</b>	<b>\$ 31,165,000</b>	<b>\$ 28,334,000</b>	<b>\$ 24,196,000</b>

# Programming

Agency Name: Engineering - Bicycle and Pedestrian

## Project Name

## Executive

1 Bike Station	1,000,000
2 Bikeways Program	680,000
3 Cannonball Path	-
4 Capital City Trail	520,000
5 Goodman Path	490,000
6 Ice Age Junction	470,000
7 Ped/Bike Enhancements	210,000
8 Safe Routes to School	83,000
9 Safe Routes Grants Program	150,000
10 Sidewalk Program	2,685,000
11 State Street 700/800 Blocks	500,000
12 West Towne Path	590,000
13 Whitney Way Bike Crossing	25,000
<b>Total</b>	<b>\$ 7,403,000</b>

2016  
Pedestrian  
and Bike  
Capital  
Budget

12 Projects

\$7.4 M

# Programming

## Ped / Bike through 2021

### 2016 Capital Budget Capital Improvement Program

Agency Name: Engineering - Bicycle and Pedestrian

Project	Reauth	2016	2017	2018	2019	2020	2021
1 Bike Station	-	1,000,000	-	-	-	-	-
2 Bikeways Program	129,000	551,000	779,000	751,000	630,000	670,000	703,000
3 Cannonball Path	-	-	-	-	-	990,000	-
4 Capital City Trail	100,000	420,000	1,090,000	130,000	360,000	770,000	-
5 Goodman Path	-	490,000	350,000	560,000	-	-	-
6 Ice Age Junction	470,000	-	2,900,000	1,660,000	300,000	-	-
7 Ped/Bike Enhancements	-	210,000	216,000	222,000	229,000	230,000	243,000
8 Safe Routes to School	-	83,000	87,000	91,000	96,000	101,000	106,000
9 Safe Routes Grants Program	-	150,000	150,000	150,000	150,000	150,000	150,000
10 Sidewalk Program	-	2,685,000	2,316,000	2,432,000	2,554,000	2,682,000	2,816,000
11 State Street 700/800 Blocks	500,000	-	-	-	-	-	-
12 West Towne Path	-	590,000	1,580,000	2,620,000	1,400,000	-	-
13 Whitney Way Bike Crossing	-	25,000	-	-	-	-	-
<b>Total</b>	<b>\$ 1,199,000</b>	<b>\$ 6,204,000</b>	<b>\$ 9,468,000</b>	<b>\$ 8,616,000</b>	<b>\$ 5,719,000</b>	<b>\$ 5,593,000</b>	<b>\$ 4,018,000</b>

# Programming

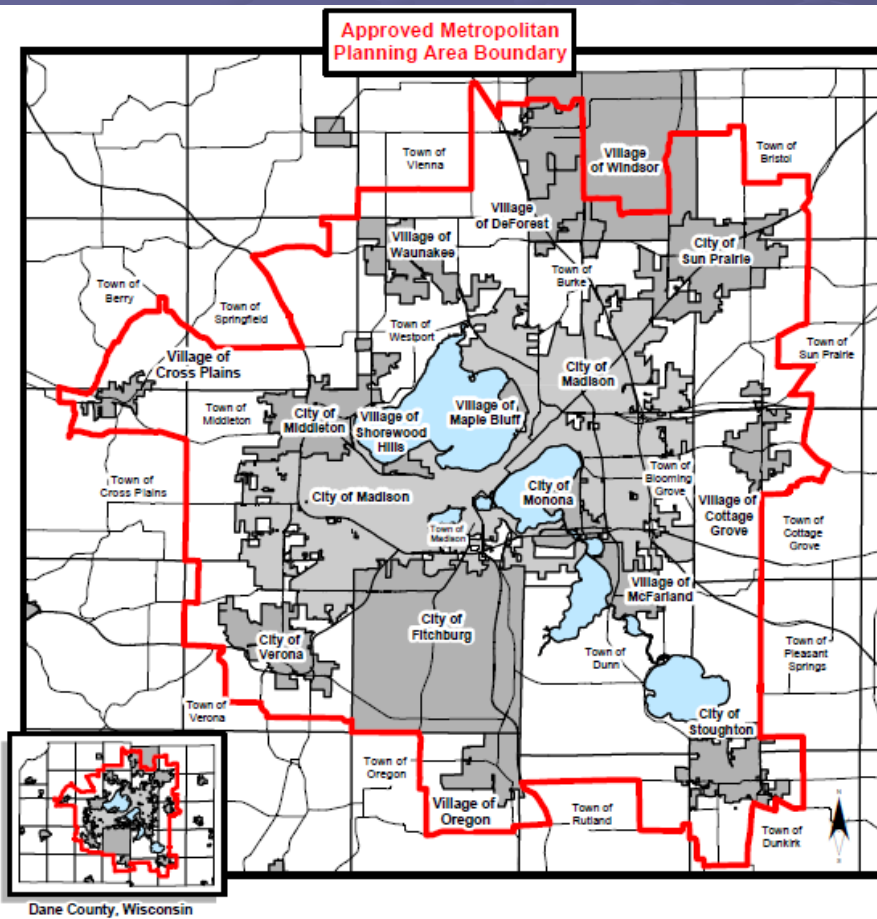


The TIP is separately approved by the Madison Area Transportation Planning Board



The Planning Board is the Federally designated Metropolitan Planning Organization (MPO)

# Programming – MPO AREA



Currently consists of:

- Cities of Madison, Fitchburg, Middleton, Monona, Stoughton, Sun Prairie, and Verona.
- Villages of Cottage Grove, Cross Plains, DeForest, Maple Bluff, McFarland, Oregon, Shorewood Hills, Waunakee, and Windsor.
- Towns of Blooming Grove, Burke, Dunn, Madison, Middleton, Westport, and a portion of the Towns of Berry, Bristol, Cottage Grove, Cross Plains, Dunkirk, Oregon, Pleasant Springs, Rutland, Springfield, Sun Prairie, Verona, and Vienna.

# Programming

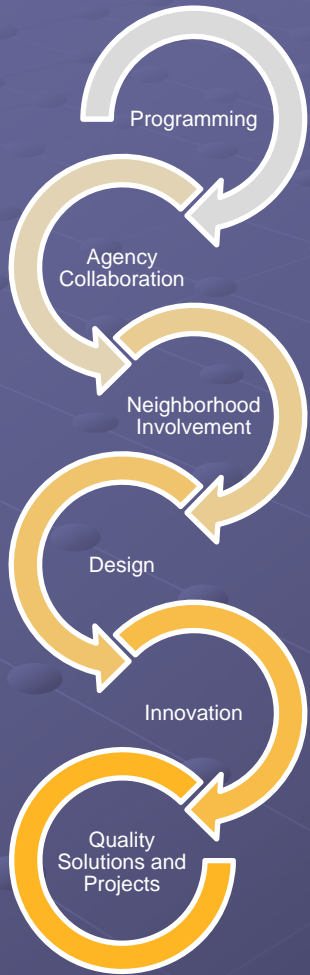
Who determines what projects and programs Federal Funds are used on?





# Programming

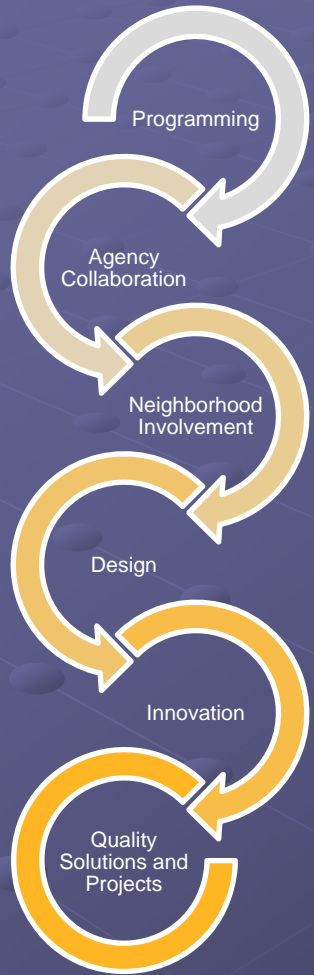
Who determines what projects and programs Federal Funds are used on?



**The  
MPO**

Federal Funds are provided to the **Madison Area** by formula

# Programming

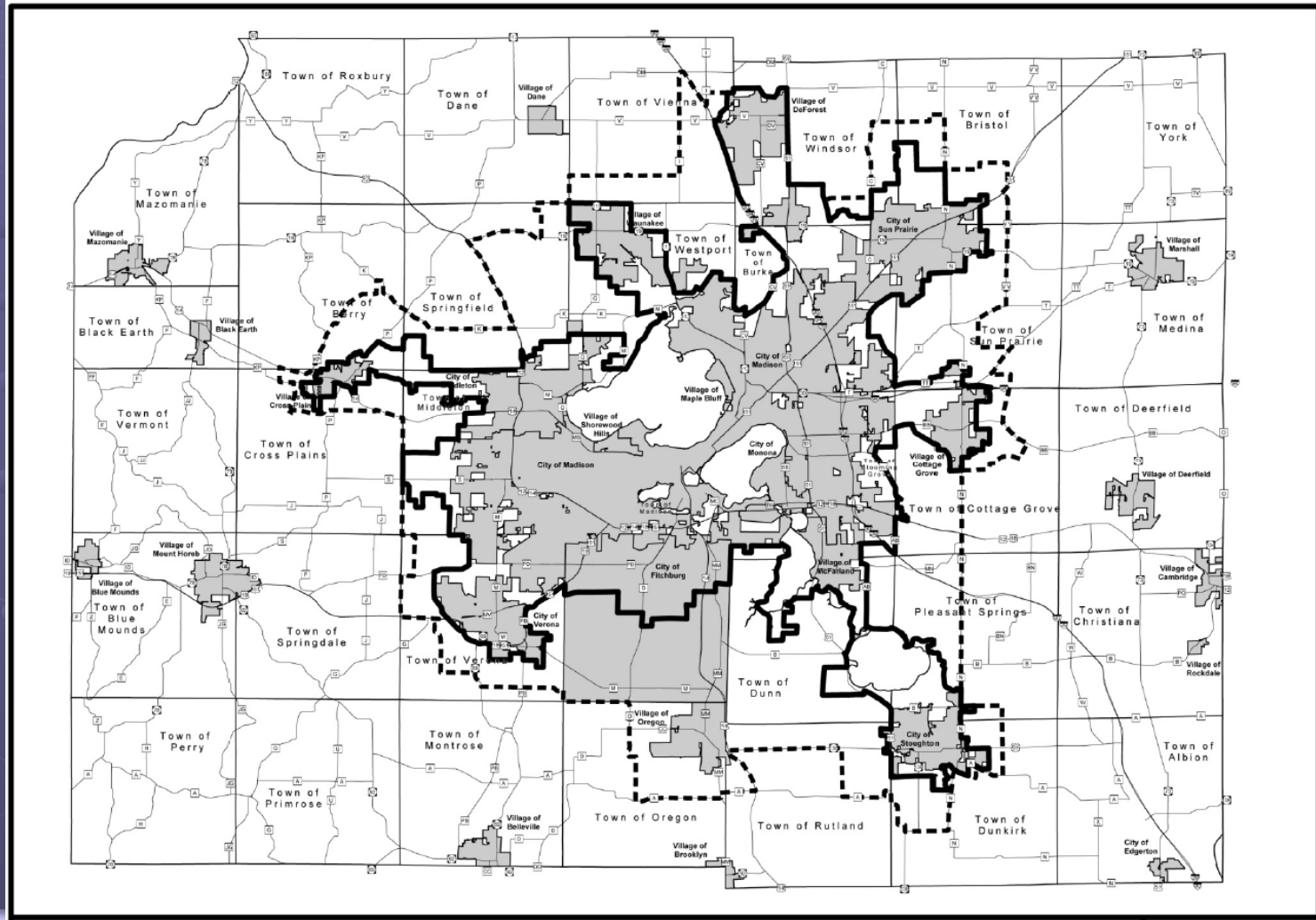


Federal General Transportation Funds  
~ \$7 Million per year (STP Urban)

Federal Ped/Bike Funds ~ \$500,000  
per year (Transp Alternative Projects)

There are other State and Federal  
Funds used in the Madison Area that  
are not under control of the MPO but  
are reflected in the adopted TIP

# Programming – MPO Urban Area





# 2016-2020 Transportation Improvement Program (Major Roadway Projects in the Madison Metropolitan Planning Area)

## Year Programmed

- 2016
- 2017
- 2018
- 2019
- 2020

--- MPO Planning Boundary

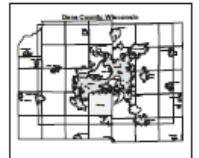
■ Study

Programmed  
Federal Funding

State and/or Local  
Funding Only

Red Text Denotes  
Planned Major Capacity  
Expansion Project

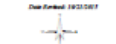
Note: Year of construction shown.  
See project listings for information  
on obligation of federal funding.



Presented to staff in the  
Madison Area



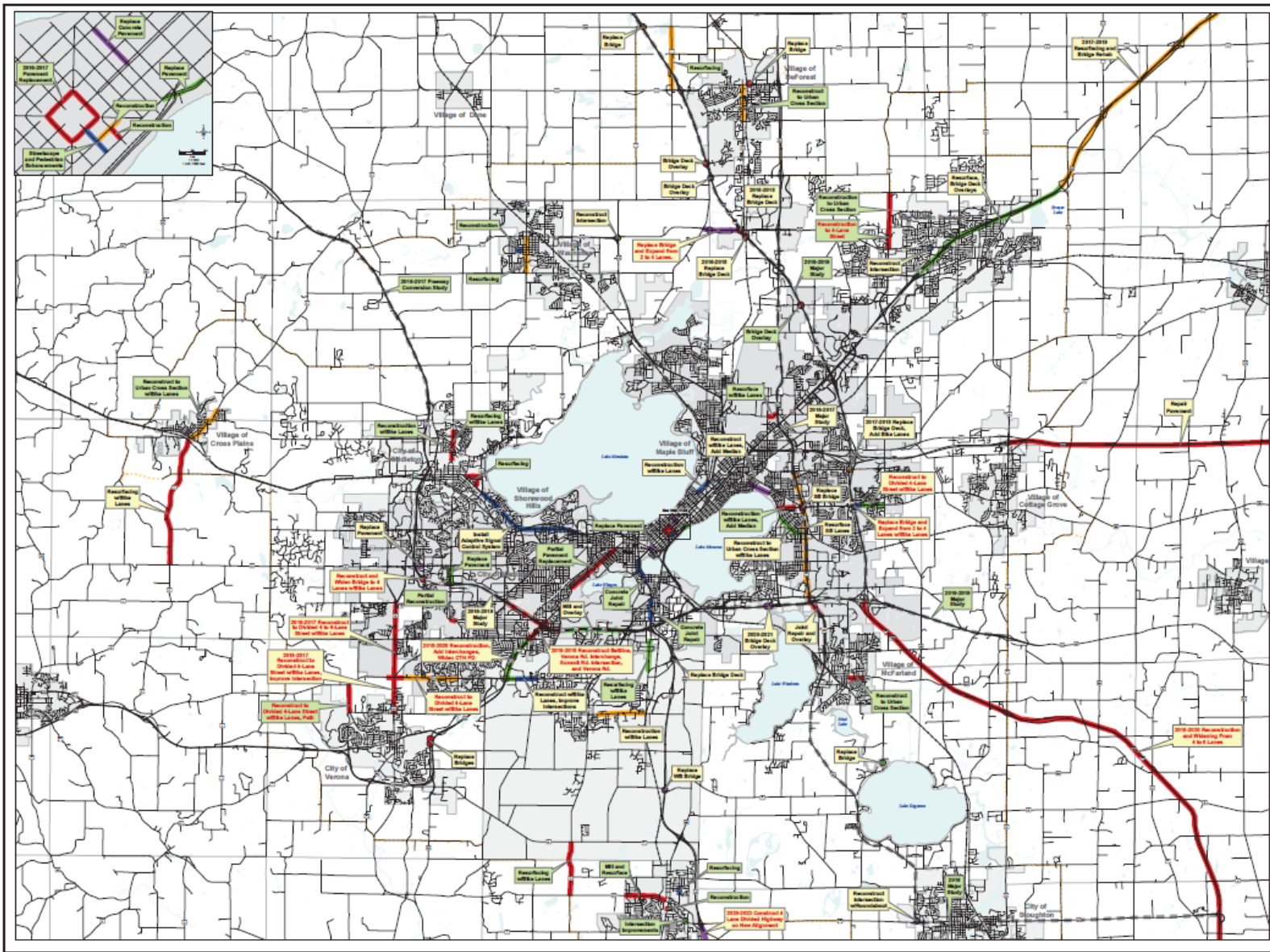
Date Revised: 10/21/2017



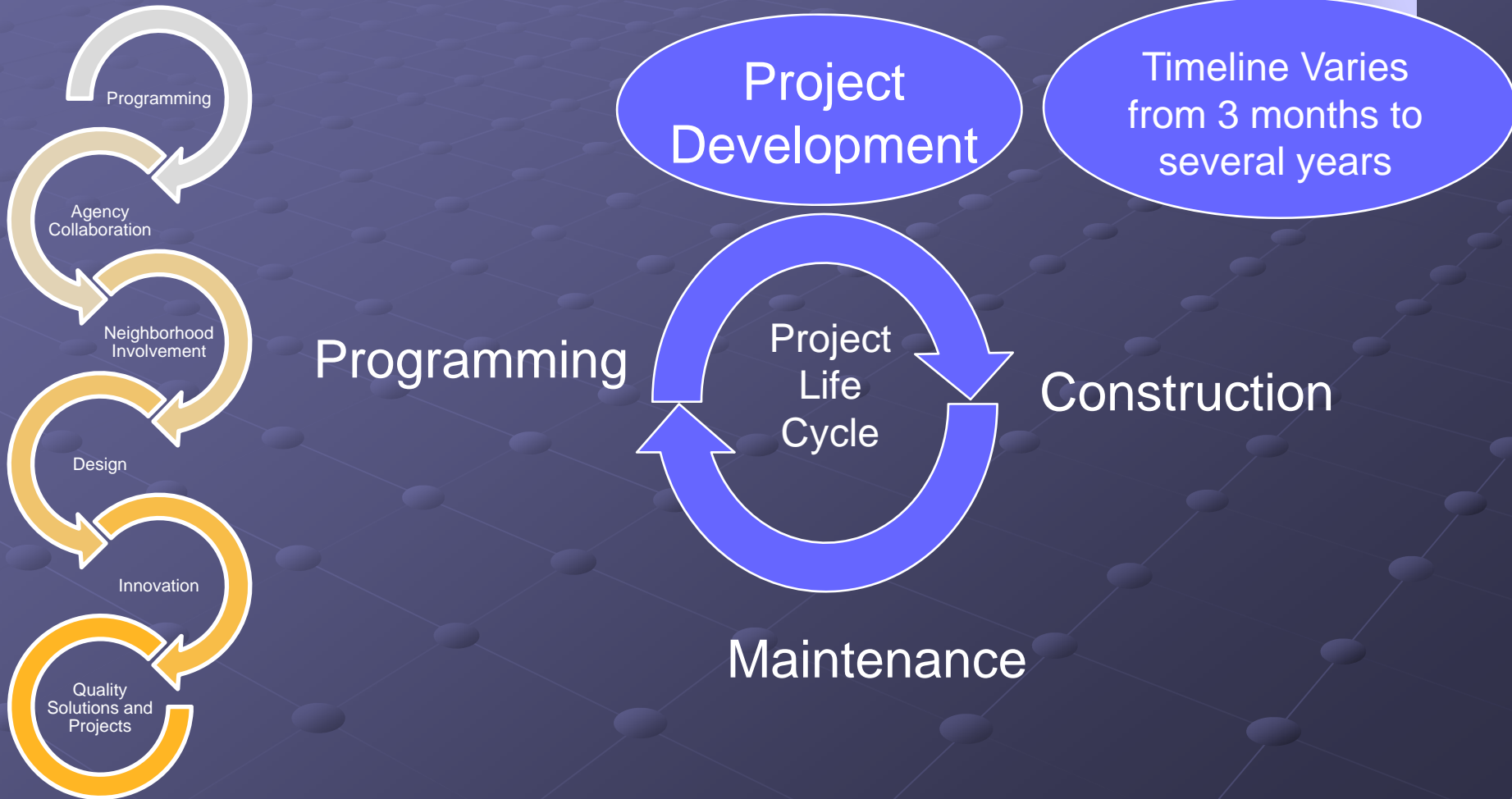
147,470

Coordinate System: NAD 83 UTM 18Q UTM Zone 18Q  
Projection: Lambert Conformal Conic

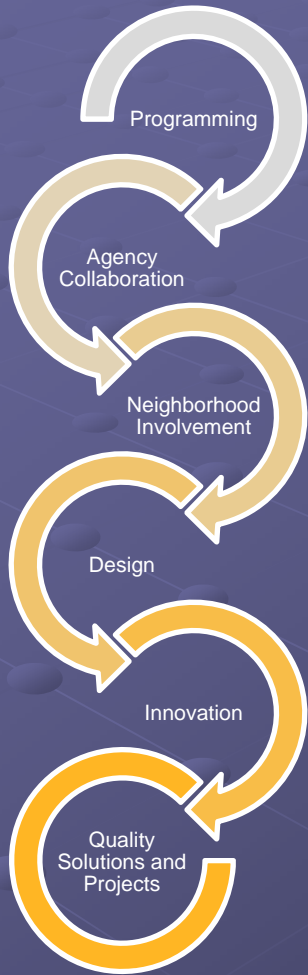
Scale:  
Map Scale: 1" = 1.5 Miles  
Graphic Scale: 0 to 3.0 Miles  
Vertical Datum: NAVD83  
Horizontal Datum: NAD83  
Projection: Lambert Conformal Conic  
Units: Feet



# Transportation Solutions Exceptional Neighborhoods



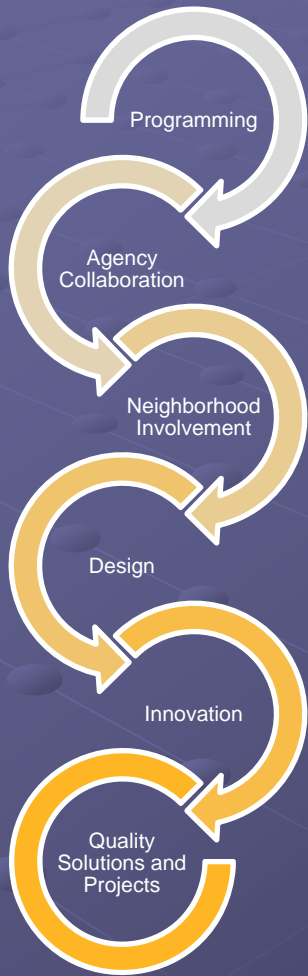
# Project Development Agency Collaboration



Many Components

Much Coordination

# Project Development Agency Collaboration



TE / CE monthly Pedestrian and Bike Coordination Meetings.

TE / CE Monthly Roadways Project Coordination Meetings

TE / Metro monthly  
Coordination Meetings.

Regular project collaboration on issues such as traffic modeling, lighting, signals, signing, parking, street trees, Bikes/Ped, Metro & traffic control.

City Planners assigned to assist designers

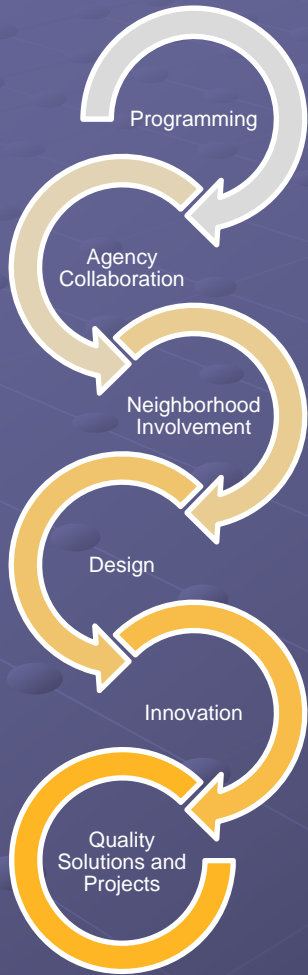
Detailed involvement with Metro for transit facilities.

Sanitary Sewer, Water Main, Storm Sewer, and Private Utilities



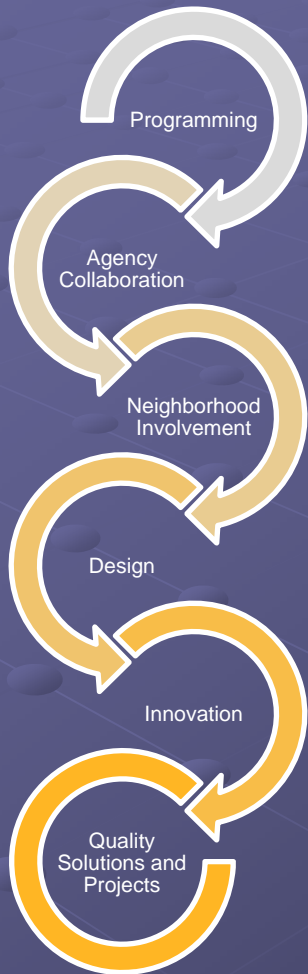
# Project Development

## Neighborhood Involvement



# Project Development

## Neighborhood Involvement



At least one neighborhood meeting for every street and bike path project. Multiple opportunities for comments on larger projects.

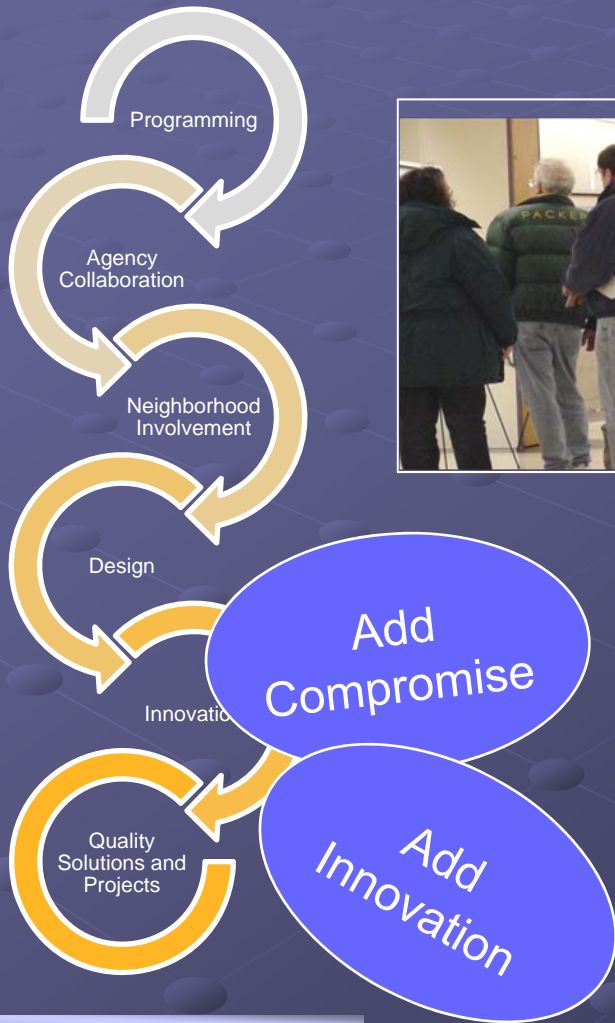
Public involvement plans on complex projects

Meeting facilitators on large projects

City team approach, involving Engineering, Traffic Engineering, Planning, Parks, and Metro Transit.

Surveys provide feedback

# Project Development Design



*AASHTO—Concepts Design of Highways and Streets*

Design vehicle	Time gap (t) (seconds) at design speed of major road
Passenger car	0.5
Single unit truck	0.5
Combination truck	10.5

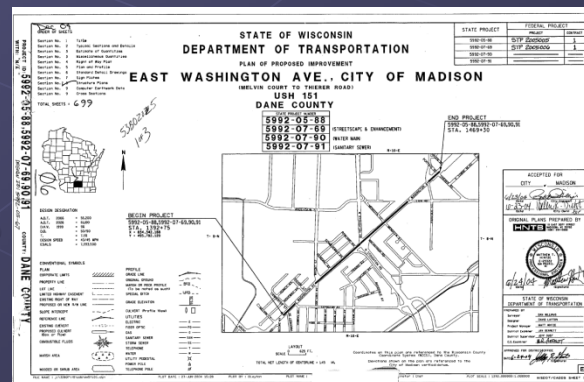
Note: Time gaps are for a stopped vehicle to turn right onto or cross a two-lane highway with no median and grades 3 percent or less. The table values require adjustment as follows:  
 For multilane highways:  
 For crossing a major road with more than two lanes, add 0.5 seconds for passenger cars and 0.7 seconds for trucks for each additional lane to be crossed and for narrow medians that cannot abate the design vehicle.  
 For minor road approach grades:  
 If the approach grade is an upgrade that exceeds 3 percent, add 0.1 seconds for each percent grade.

**Exhibit 9-57. Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Manoeuvr**

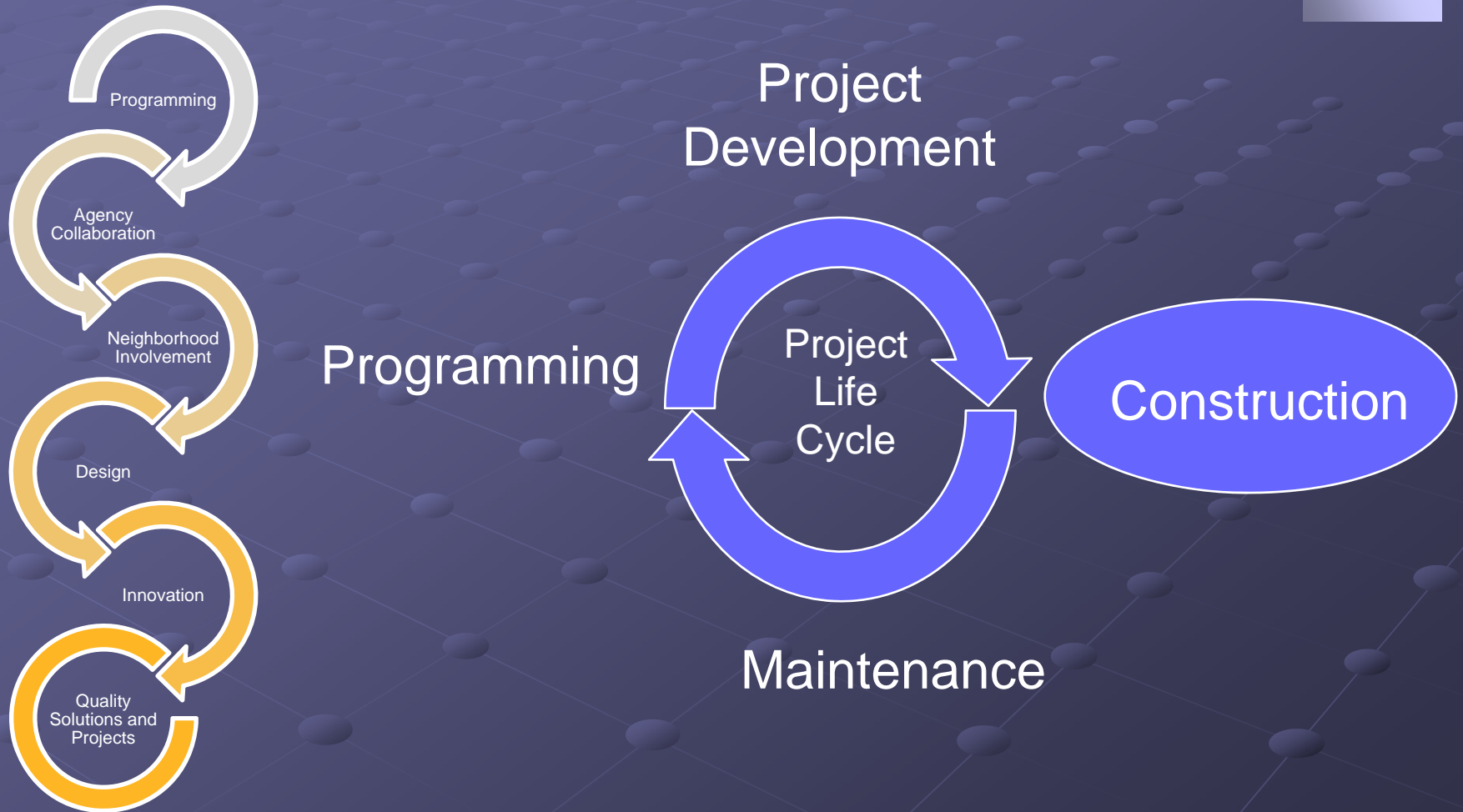
Metric			US Customary		
Design speed (mi/h)	Stopping sight distance (ft)	Intersection sight distance for passenger cars (ft)	Design speed (mi/h)	Stopping sight distance (ft)	Intersection sight distance for passenger cars (ft)
20	25	38.1	40	15	80
30	35	54.2	50	20	110
40	50	72.3	60	25	150
50	65	90.4	70	30	200
60	80	108.4	80	35	250
70	105	126.5	90	40	300
80	130	144.6	100	45	350
90	150	162.6	110	50	400
100	180	180.7	120	55	450
110	200	198.8	130	60	500
120	250	216.8	140	65	550
130	280	234.9	150	70	600
			160	75	650
			170	80	700
			180	85	750
			190	90	800
			200	95	850

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or cross a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap must be adjusted and required sight distance recalculated.

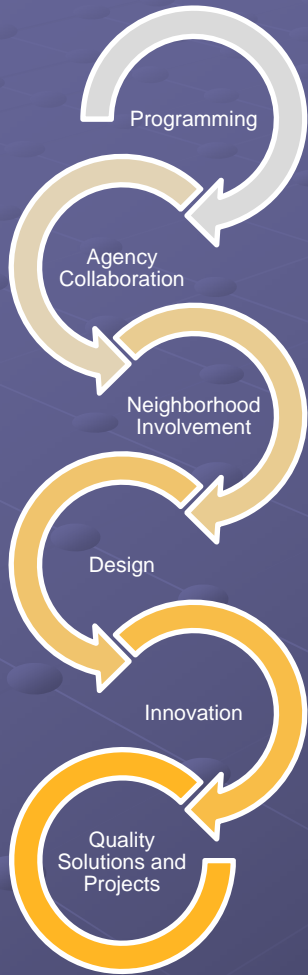
**Exhibit 9-58. Design Intersection Sight Distance—Case B2—Right Turn from Stop and Case B3—Crossing Manoeuvr**



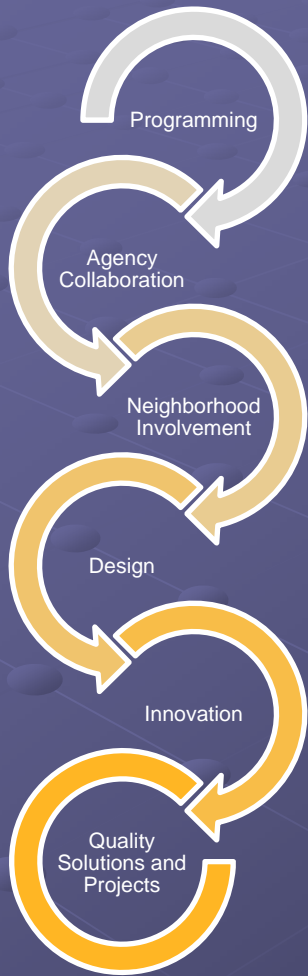
# Transportation Solutions Exceptional Neighborhoods



# Project Development Construction



# Project Development Construction

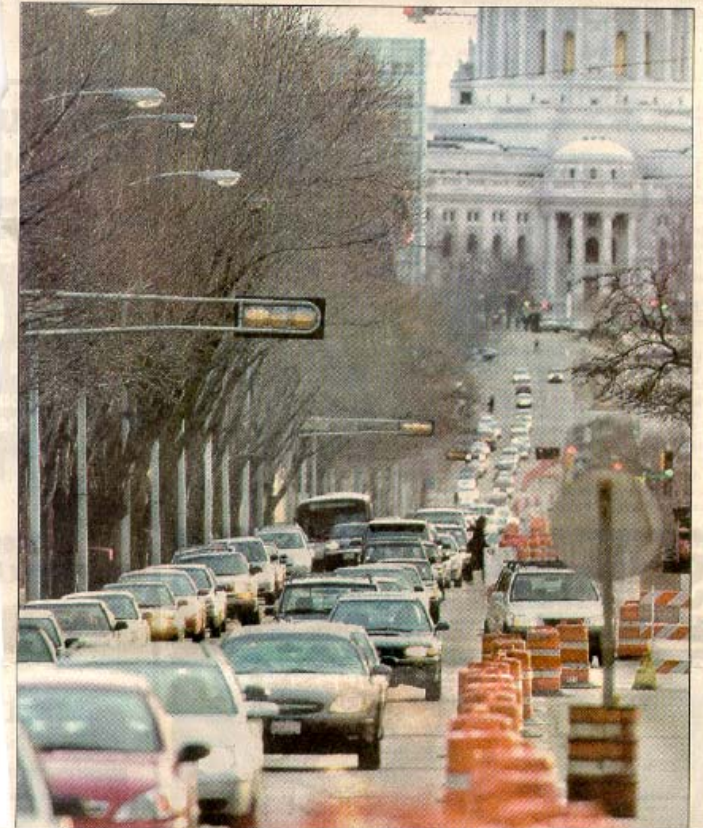


East Wash under construction

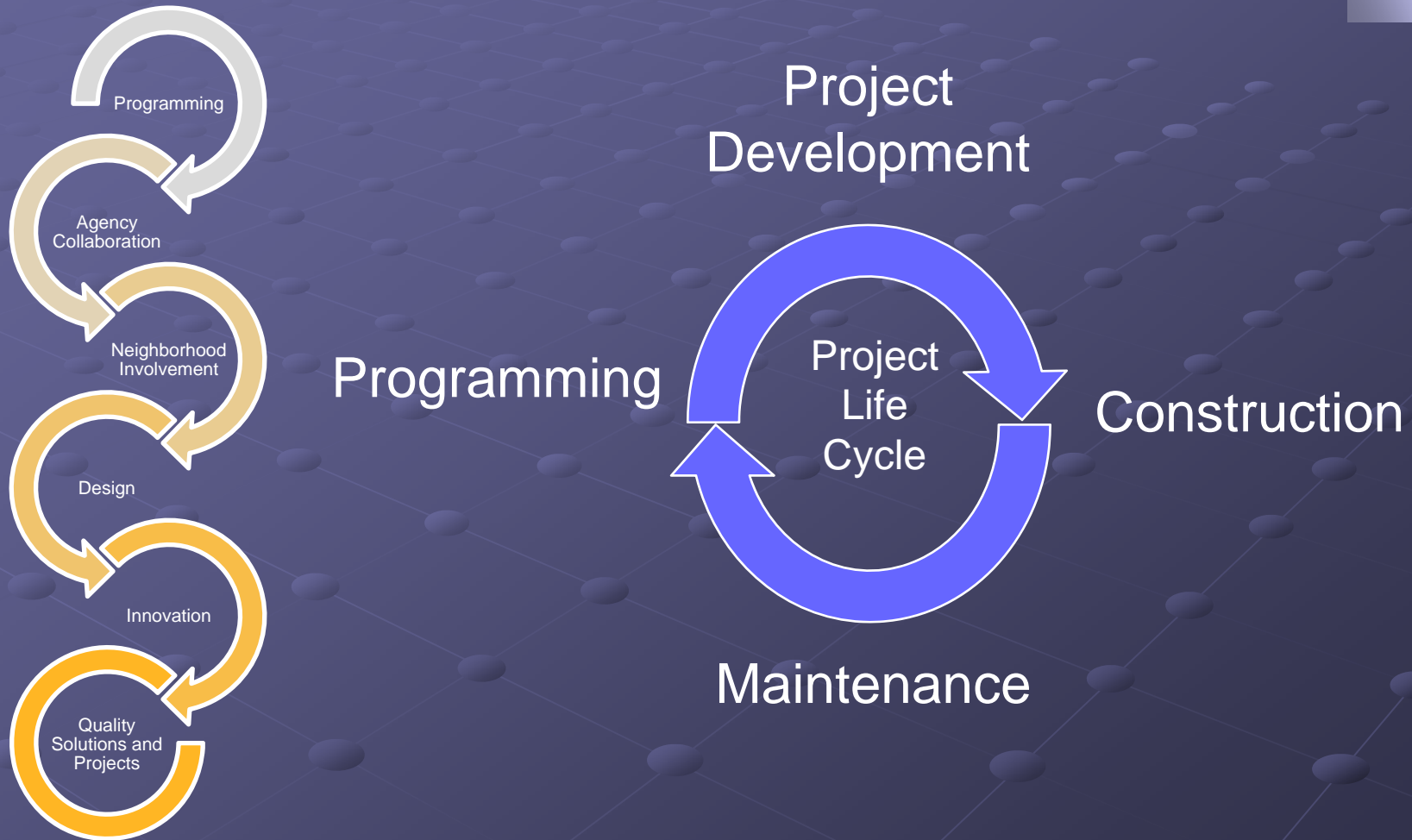


EAST WASHINGTON'S RECONSTRUCTION

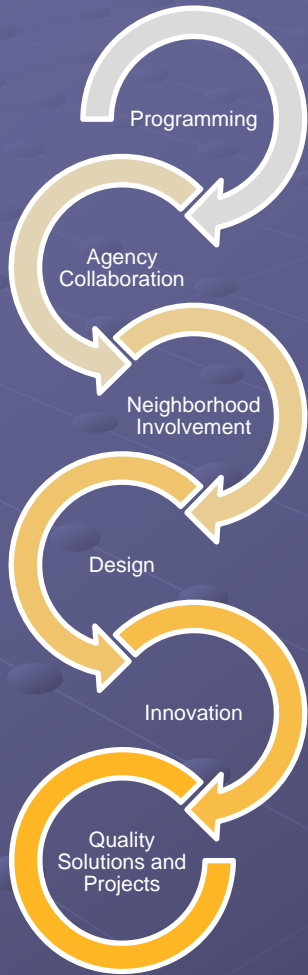
## BUSINESSES, TRAFFIC ARE WORKING IT OUT



# Transportation Solutions Exceptional Neighborhoods



# Transportation Solutions Exceptional Neighborhoods





# Transportation Solutions Exceptional Neighborhoods



Photo by Peter Patau

# Transportation Solutions Exceptional Neighborhoods

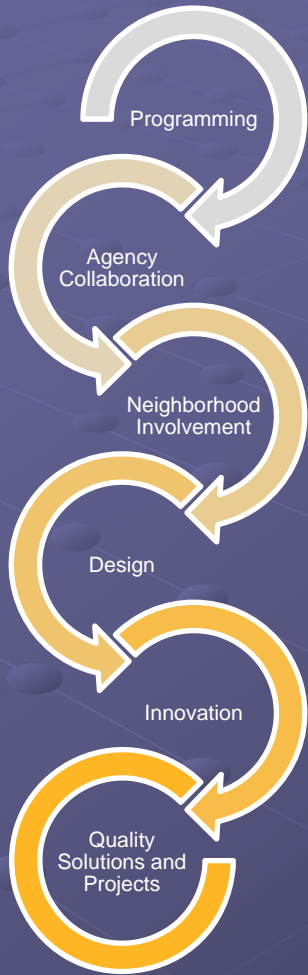
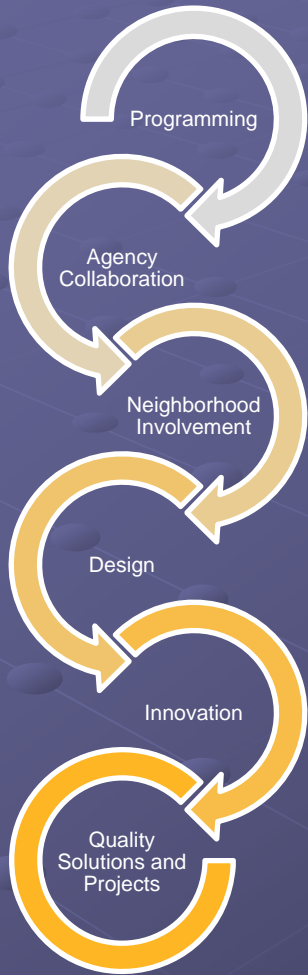
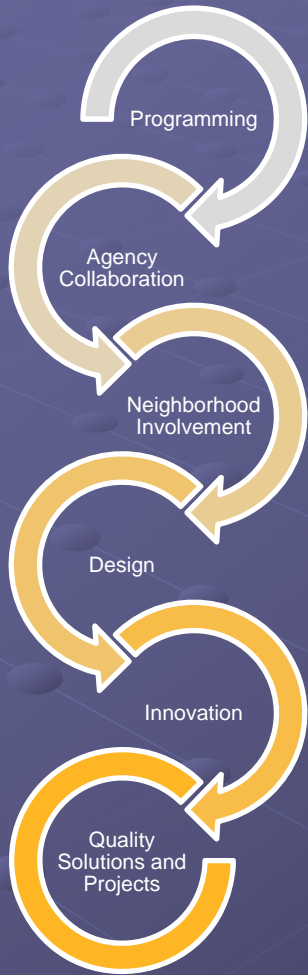


Photo by Archie Nicolette

# Transportation Solutions Exceptional Neighborhoods



# Transportation Solutions Exceptional Neighborhoods



# Transportation Solutions. Exceptional Neighborhoods

What started in the 1970's as a policy  
has become the culture of the City

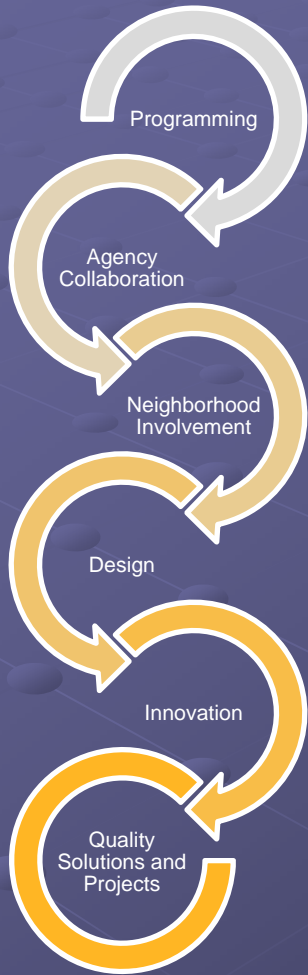
We build balanced  
transportation projects.



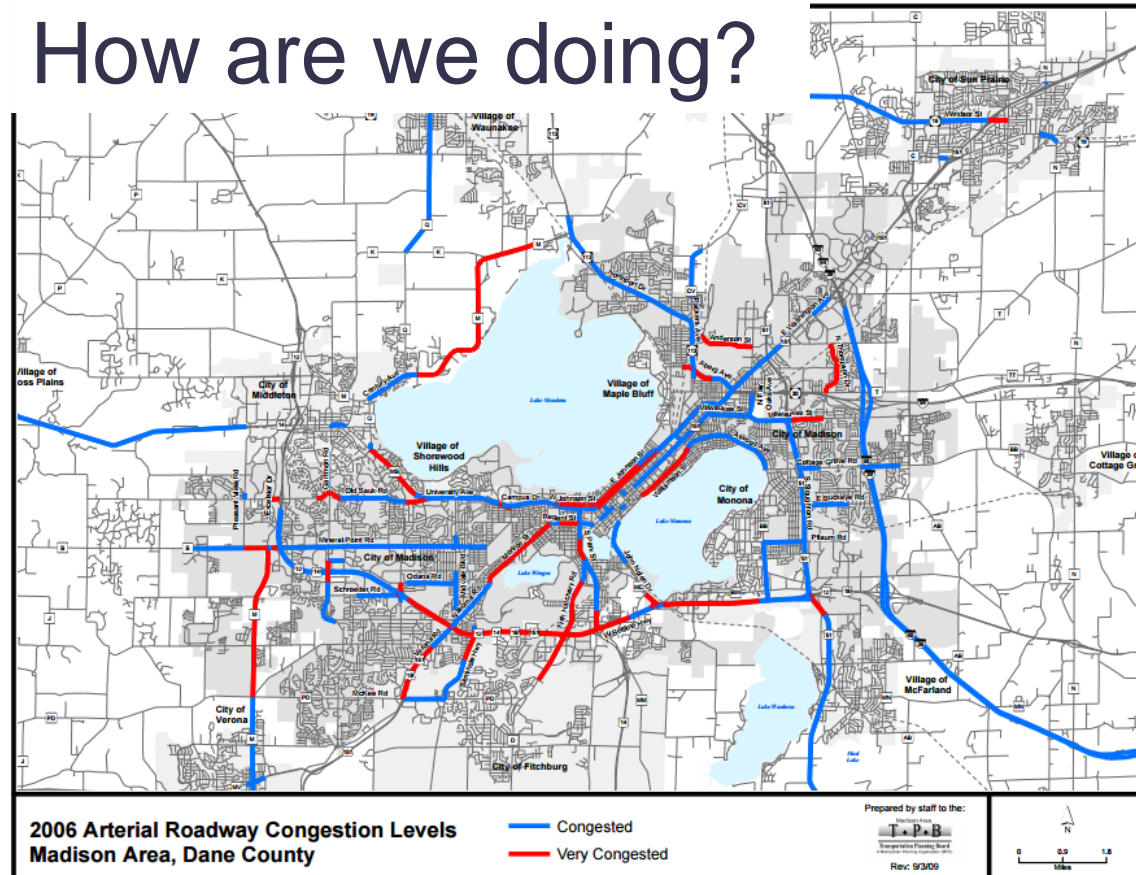
Mode share is accomplished  
through convenience.



# Transportation Solutions Exceptional Neighborhoods



## How are we doing?

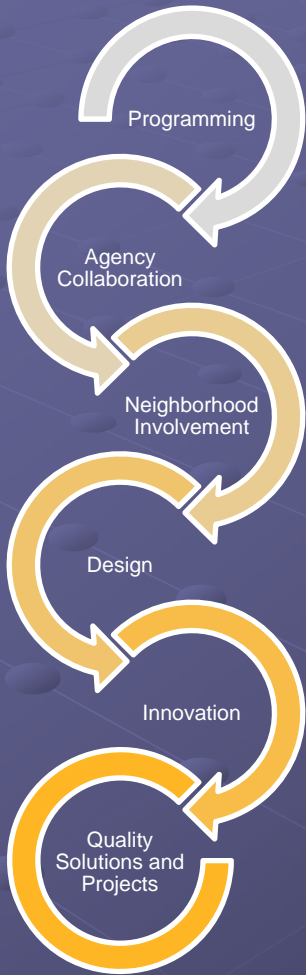


NAME: pldm

FILE: C:\ArcMap\Pyl\Trans\Congestion\Congestion\_2009\Congestion\_Madison\_2006.mxd

PRINTED: 9/8/2009

# Transportation Solutions Exceptional Neighborhoods

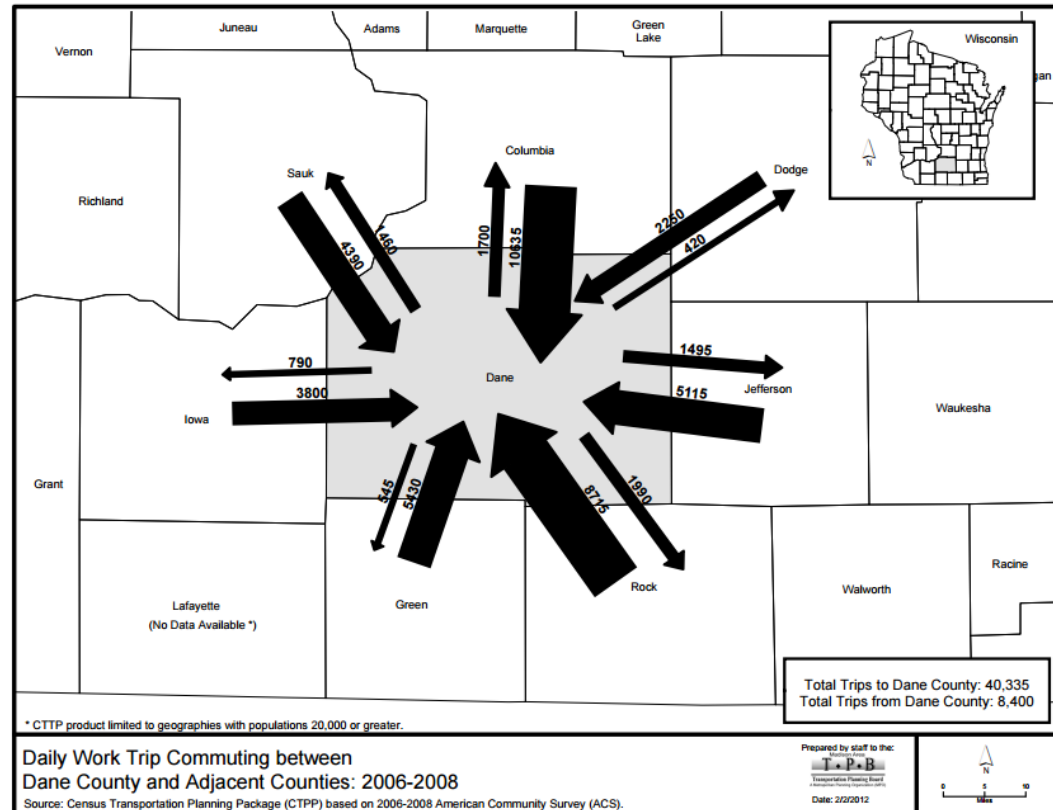


2035 Regional Transportation Plan Update

24

March 2012

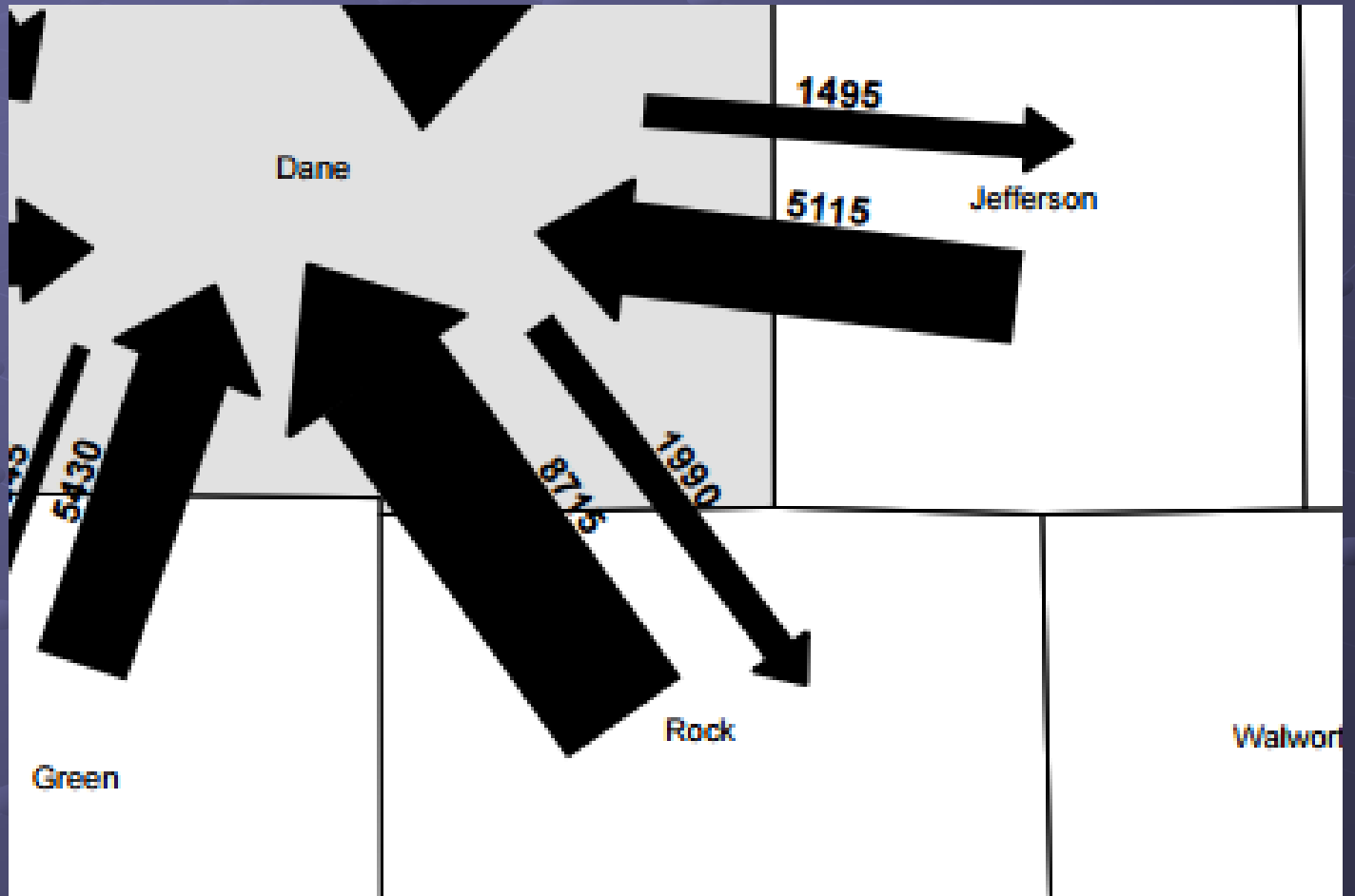
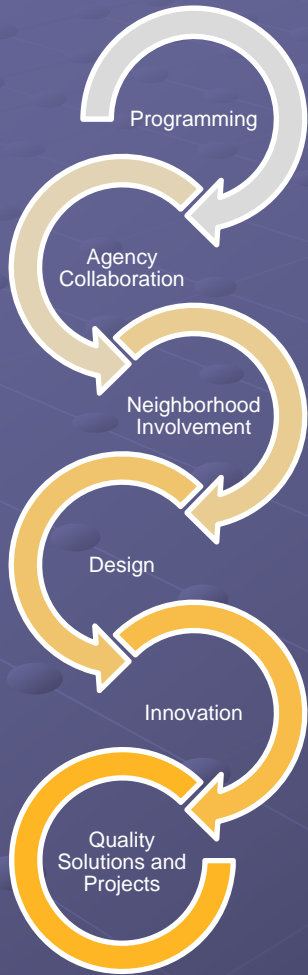
Figure 7



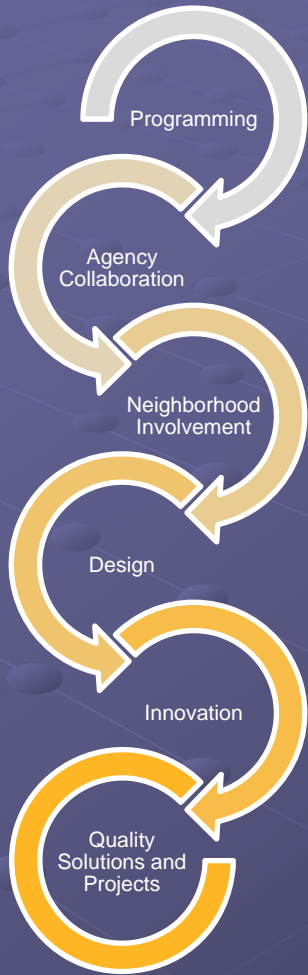
J.L.P.



# Transportation Solutions Exceptional Neighborhoods



# Transportation Solutions Exceptional Neighborhoods



## Dane County had highest population growth in state last year, says Census Bureau

AMANDA FINN [afinn@madison.com](mailto:afinn@madison.com), 608-252-6139 Mar 24, 2016 4



Wisconsin has had a 1.5 percent population growth rate since 2010.

### POPULAR IN NEWS

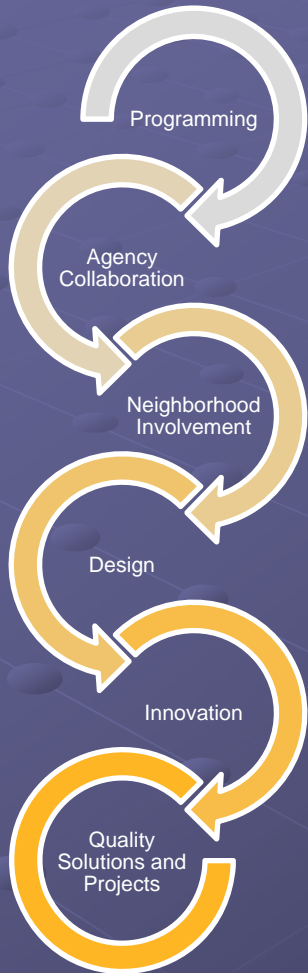
- 1** UW Professor James Baughman getting his day on Saturday, mayor proclaims
- 2** 1 killed, 6 injured when limo carrying passengers from Madison area overturns near Chicago
- 3** Man spared prison sentence after shooting at cars on Beltline
- 4** Ted Cruz scores more Wisconsin GOP endorsements; Hillary Clinton arrives next week

Dane County had the highest rate of population growth of any county in Wisconsin in the last year, the U.S. Census Bureau said Thursday.

The county's population rose 1.3 percent between July 1, 2014, and July 1, 2015, the bureau said.



# Transportation Solutions Exceptional Neighborhoods

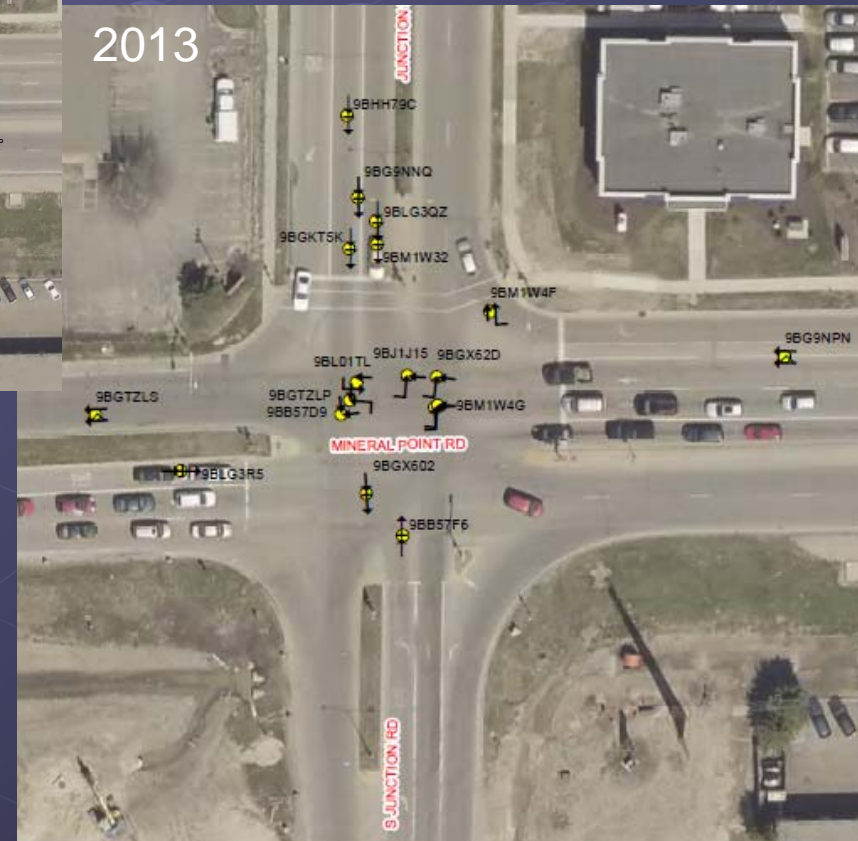
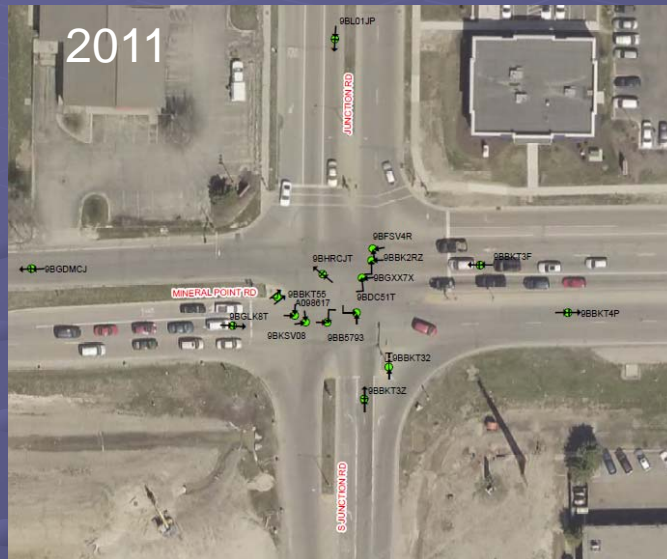
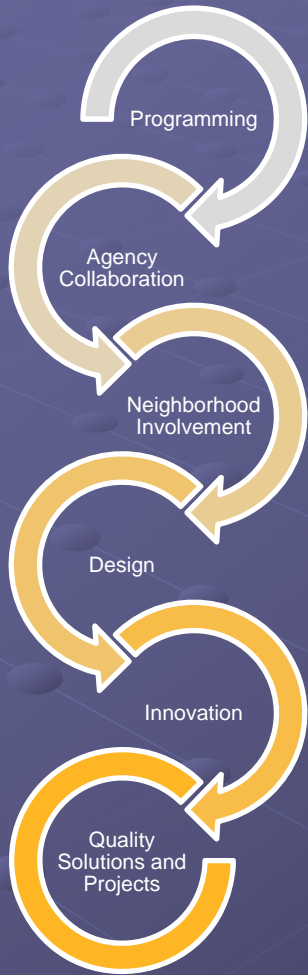


**Madison city, Wisconsin**

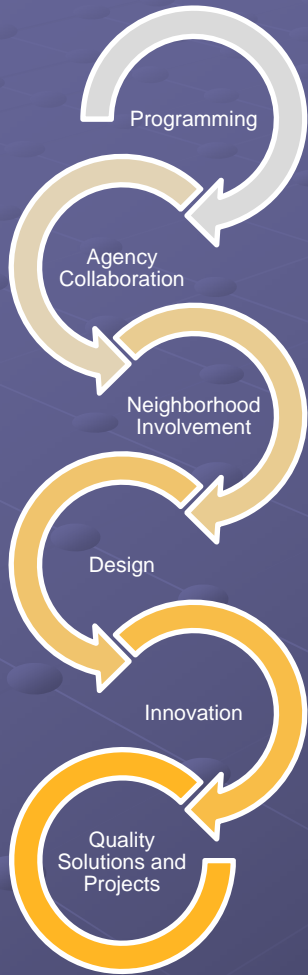
Subject	2014		2011-2013 3 year average	
	Total	Margin of Error	Total	Margin of Error
	Estimate	Margin of Error	Estimate	Margin of Error
Workers 16 years and over	139,244	+/-3,645	134,951	+/-2,031
<b>MEANS OF TRANSPORTATION TO WORK</b>				
Car, truck, or van	69.5%	+/-2.4	71.7%	+/-1.3
<b>Drove alone</b>	<b>62.1%</b>	<b>+/-2.6</b>	<b>63.5%</b>	<b>+/-1.4</b>
Carpooled	7.4%	+/-1.5	8.3%	+/-0.9
In 2-person carpool	5.6%	+/-1.3	6.6%	+/-0.8
In 3-person carpool	1.2%	+/-0.5	1.3%	+/-0.3
In 4-or-more person carpool	0.7%	+/-0.5	0.4%	+/-0.2
Workers per car, truck, or van	1.06	+/-0.01	1.07	+/-0.01
<b>Public transportation (excluding taxicab)</b>	<b>10.1%</b>	<b>+/-1.6</b>	<b>9.1%</b>	<b>+/-0.8</b>
Walked	10.3%	+/-1.6	9.5%	+/-1.0
Bicycle	5.3%	+/-1.0	5.2%	+/-0.7
Taxicab, motorcycle, or other means	1.0%	+/-0.4	0.7%	+/-0.2
Worked at home	3.9%	+/-0.7	3.8%	+/-0.4

Source: American Community Survey (ACS)

# Transportation Solutions Exceptional Neighborhoods



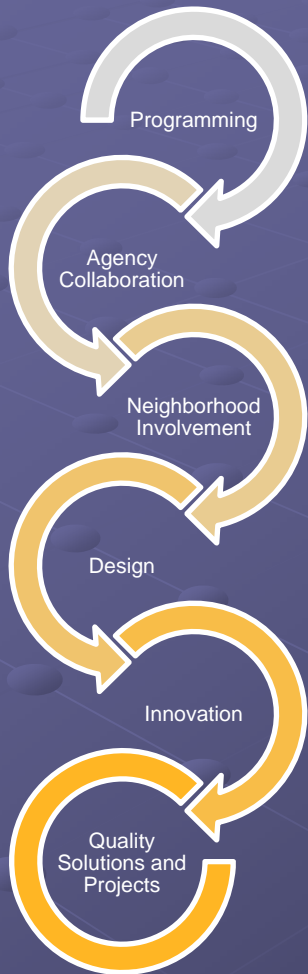
# Transportation Solutions Exceptional Neighborhoods



Traffic Crashes Before/After

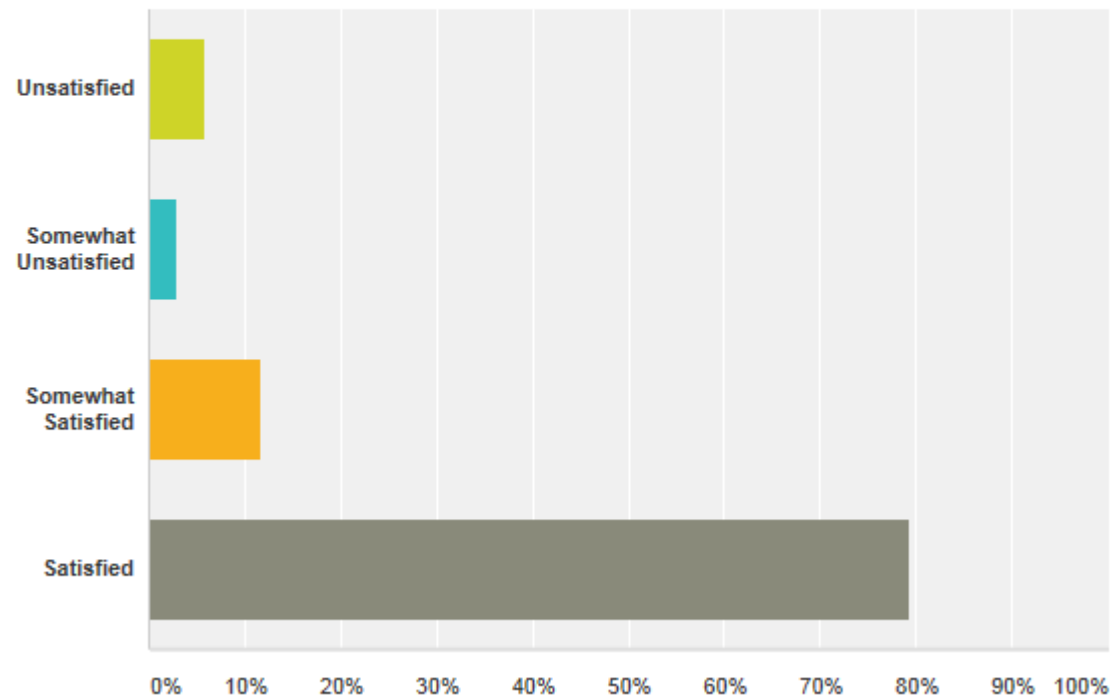
	Junction Rd-Mineral Pt Intersection	Jug Handle
2011	16	N/A
2012	10	N/A
2013	18	N/A
2014	15	3
2015 (till Nov)	4	5

# Transportation Solutions Exceptional Neighborhoods



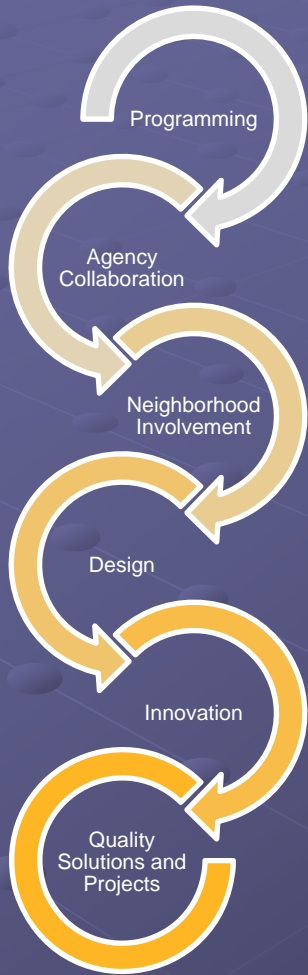
**What is your overall satisfaction with the improvements in your neighborhood?**

Answered: 34 Skipped: 1



# Transportation Solutions Exceptional Neighborhoods

## How are we doing?



MADISON  
237395 RESIDENTS



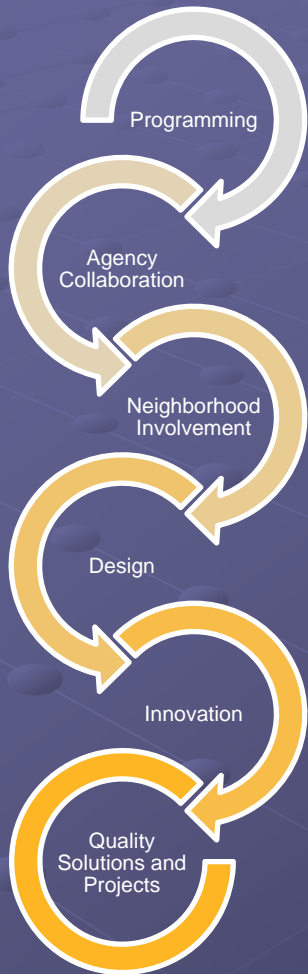
Madison one of only 5 Communities Nationwide to be awarded Platinum.

Only City East of the Mississippi River awarded Platinum



# Transportation Solutions Exceptional Neighborhoods

## How we do it?



- **Madison Ranked One of the 13 Hottest American Cities for 2016** [📄 January 2016](#)  
Business Insider

- **Madison Ranked U.S. Growth City #4** [📄 February 2016](#)  
by U-Haul

- **Madison Ranked #7 Best Metro Area for STEM Professionals** [📄 January 2016](#)  
by WalletHub

- **Madison Ranked the 10th Best City for an Active Lifestyle** [📄 January 2016](#)  
by WalletHub

- **Madison Ranked 5 Stars** [📄 December 2015](#)  
by Yelp.com

- **Madison Ranked the 3rd Healthiest City** [📄 April 2015](#)  
by Livability.com

- **Madison Ranked #1 for Successful Aging among big cities and small cities** [📄 November 2014](#)  
by Forbes.com

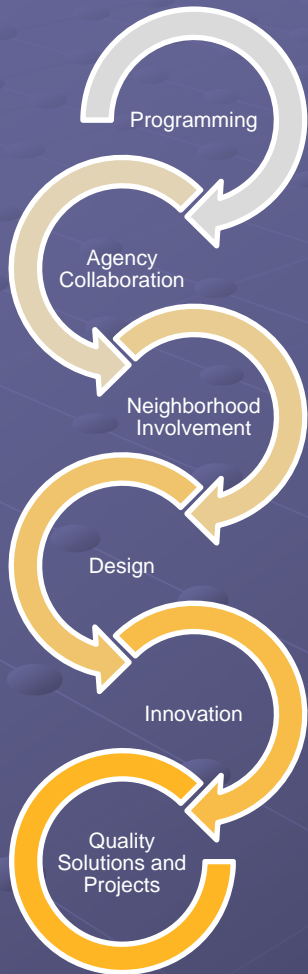
- **Madison Ranked the #1 Most Livable City in America** [📄 September 2014](#)  
by Livability.com

- **Madison Ranked the 11th Best City for Families** [📄 June 2014](#)  
by WalletHub



# Transportation Solutions Exceptional Neighborhoods

## How we doing?



#1 Most Compact Mid-Sized City in U.S. (13th in U.S. Overall)

[Smartgrowthamerica.org](http://Smartgrowthamerica.org)

- **Madison Ranked One of the Top 10 Happiest Cities** [January 2015](#)  
by National Geographic

- **Madison Ranked the 2nd Best Midwest City for Green Commuting** [May 2014](#)  
by HomeownersInsurance.com

- **Madison Ranked Among Top Healthiest Cities** *September 2013*  
A national accolade for Madison from Huffington Post for being one of the country's 25 healthiest cities.

- **Madison Ranked #5 in Best Places to Live** *November 2013*  
by Livability.com

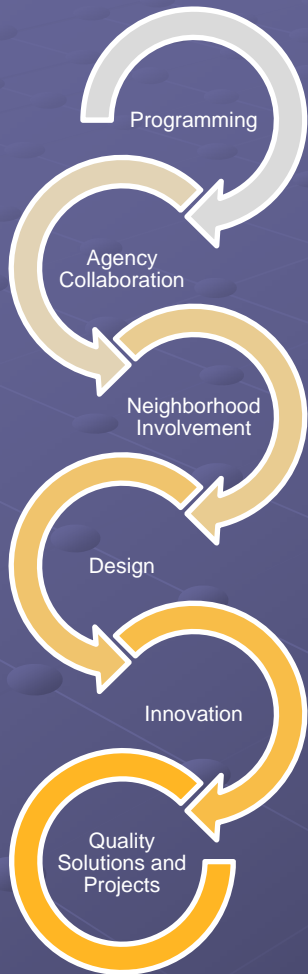
The Best Cities on Earth for Biking  
[Yahoo Travel, June 2015](#)

#1 Greenest City in America  
[Nerdwallet, April 2014](#)

- **Madison Ranked #5 in America's Best Cities for Young Professionals** [August 2014](#)  
by Forbes.com

# Transportation Solutions Exceptional Neighborhoods

## How we doing?



"7 reasons why Madison, Wisconsin is the best place to live in America"

**Business Insider, September 2014**

#3 in Top 100 Best Places to Live 2016

**Livability.com, September 2015**

#1 in Top 100 Places to Live

**Livability.com, September 2014**

Most Livable Cities in America

**Forbes, April 20, 2015**

10 Most Livable Neighborhoods in the U.S.

**AARP, April 16, 2015**

5 Reasons Madison, WI Might be the World's Best Place to Retire

**Huffington Post, February 27, 2015**

#1 Best U.S. Cities for Quality of Life

**NerdWallet.com, August 2014**

#1 Best Small Cities to Live

**Credit Donkey, August 2013**

