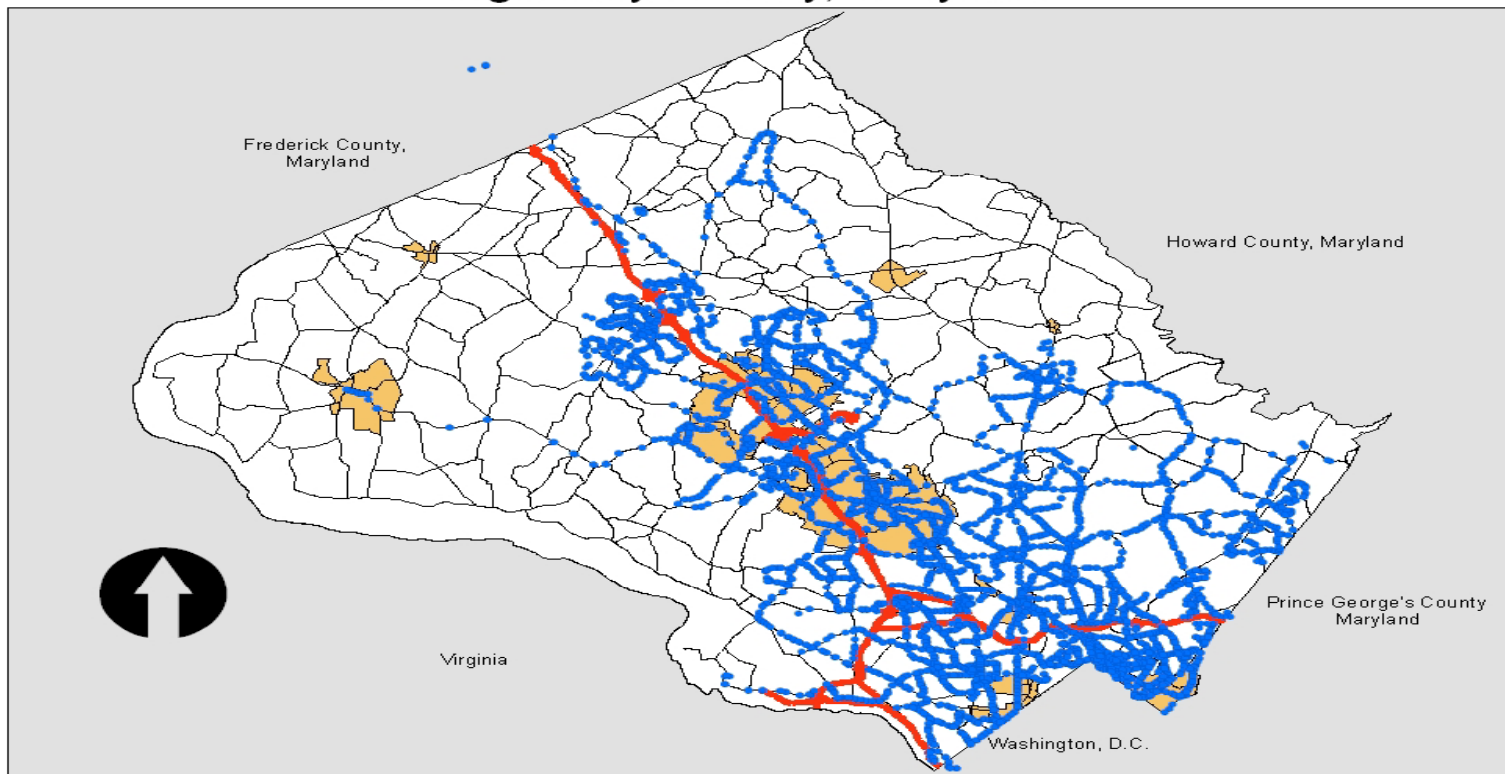


Management of Transit Passenger Facilities using GIS

Stacy Coletta, Dept. of Transportation
Montgomery County, Maryland

Ride On Bus Service Montgomery County, Maryland









Bus Stop Database: Types of Information Surveyed

- Location / Description
- Pedestrian Access / Connection
- Signage Information
- Safety / Security Characteristics
- Amenities

Using the Database to address the Implementation Process

The screenshot displays the ArcMap interface with the following components:

- Layers Panel:** Lists various map layers. The layer `BusStopInventory_Retired_100305` is selected and highlighted in blue.
- Map View:** Shows a street map with labels for `Amont St`, `Bro`, and `R`. Two bus stop locations are marked with blue and cyan dots.
- Identify Results Window:** Displays the details for the selected bus stop (ID: 10029). The data is as follows:

Field	Value
STOPID	10029
Z2_DATE	3/5/2004 0:00:00
Z3_TIME	10:12:28am
Z4_TYPE_OF	Bus Stop Only
Z5A_ON_STR	RAILROAD ST
Z5B_AT_STR	GROVE ST
Z6A_HEADIN	Northbound
Z6B_POSITI	Across From
Z7_ROW	Public ROW
Z8_LANDING	Clear Landing Area
Z1B_LANDIN	No
Z9_LAND_CO	
Z0_SIDEWAL	
Z7A_SIGN_I	
Z8A_WMATA_	No
Z8B_RIDE_O	Yes
Z8C_THE_B	No
Z8D_HOWARD	No
Z8E_CTC_SE	No
Z8F_COMMUIT	No
Z3_POSTED_	None
Z0_SHELTER	
Z1_SHELTER	
Z2_ADVERTI	
Z9_SEATING	
Z5_TRASH_R	No
Pict_A	S:\BusStopPhotos\10029a.JPG
Pict_B	S:\BusStopPhotos\10029b.JPG
Pict_C	S:\BusStopPhotos\10029c.JPG

The bottom of the screen shows the Windows taskbar with the Start button and several open applications: `Inbox - ...`, `Electron...`, `2 Micr...`, `2 Win...`, `BusStop...`, and `Gmail - ...`. The system clock shows `3:46 PM`.

Using the Database to address the Implementation Process

The screenshot displays the ElectronicFieldStudy software interface. The main window shows an aerial photograph of a road and surrounding area. A blue line is drawn across the road, and a red crosshair is positioned at its end. The software's menu bar includes File, Edit, Workspace, Annotate, Navigate, Tools, Overlays, View, Window, and Help. The toolbar contains various icons for navigation and analysis, including a search bar with the text "Enter address".

On the right side, there is a sidebar with four image thumbnails, each with a red crosshair. The thumbnails are labeled with IDs: "DCMetr017025NeighObliq3", "DCMetr017024NeighObli", "DCMetr017025NeighObli", and "DCMetr017025NeighObli".

At the bottom of the main window, a status bar displays the text: "This distance: 131.88 feet Total distance: 131.88 feet". Below this, there are tabs for "Folder Info", "Tool Info", and "Query Info".

The Windows taskbar at the bottom shows the start button, several open applications (Canadi..., BusSto..., 2 Win..., Microso..., BusSto..., Electro...), and the system clock showing 2:42 PM on April 13, 2003.

Using ArcGIS as pseudo AMMS

(Advanced Maintenance Management System)

- **Difficult to scale**
- **High licensing & maintenance costs**
- **Few supported devices**
- **Separate data sources**
- **Low usability**
- **Not user friendly**

Information Required

- **Where assets are located**
- **What amenities are provided**
- **What actions have been performed**
- **When these actions were performed**
- **By whom these action were performed**
- **Who should be contacted to handle specific requests**
- **How well work is being done**

Geo-WIKI

Uses wiki technology as the backbone software engine for combining and displaying various data sources (both internal and external) to create a central asset knowledgebase that is spatially and semantically aware and to facilitate the management of the tasks that pertain to those assets throughout its lifecycle.

Montgomery County Transit - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Montgomery County Transit

wiki.rideonbus.com/wiki/Main_Page

Getting Started Latest Headlines Customize Links(1) Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Welcome To Sweet Home

Colets My talk My preferences My watchlist Semantic watchlist My contributions Log out

Portals » Dashboards » Advanced Search » Help » Search »

Page Discussion Edit History Move Watch Refresh

Main Page

Introducing "Map highlight" feature in bus stop searches. [Read more](#) [dismiss]

Service Interruptions

[Missed Trips]
 Route 34 @ 2:20 PM, 3:50 PM to Wheaton Metro Station.
 Route 34 @ 3:00 PM to Friendship Heights Metro Station.
 Central (2012-07-08 19:00:38)

[Detours]
 None at this time.
 Central (2012-07-08 19:00:45)

[Delays]
 None at this time.
 Central (2012-07-08 19:00:52)

Local Transportation News & Opinions

Report: Traffic studies systematically overstate benefits of road projects
 Nearly every time a new road is built, traffic volume increases beyond the predictions of the traffic studies. And nearly every time, transportation planners are surprised. -- *Angie Schmitt, July 6, ...*
 (2012-07-07 03:23:35)

Green Line Metro train derailed in Prince George's
 A Green Line Metro train derailed late Friday afternoon near the West Hyattsville station, shutting down service on a stretch of the line and causing delays throughout the Metro system, authorities sa ...
 (2012-07-07 03:18:35)

NPS to expand bike access to parks nationwide
 The new rule, available online at: <http://www.ofr.gov/inspection.aspx>, gives park superintendents the authority to allow bicycles on roads that are closed to the motoring public – like f ...
 (2012-07-06 13:18:11)

Search Bus Stops

STOPID(s):

Route:

On street:

At street:

Status:

Map highlight:

Explore Other Data

- [+] [Routes](#) (157 P)
- [+] [Park and ride lots](#) (18 P)
- [+] [Rail stations](#) (14 P)
- [+] [Transit centers](#) (5 P)
- [+] [Groups](#) (9 P)
- [+] [Organizations](#) (4 C, 6 P)
- [+] [People](#) (2 C, 9 P)
- [+] [Programs](#) (5 P)
- [+] [Maintenance schedules](#) (4 P)

start

Montgomery County ... PFU_Presentation Microsoft PowerPoint ...

4:21 PM

Portals » Dashboards » Advanced Search » Help » Search »

Special page

Run query: Bus stop query

Introducing "Map highlight" feature in bus stop searches. [Read more](#)

[\[dismiss\]](#)

Results

= Shelters (8 stops)

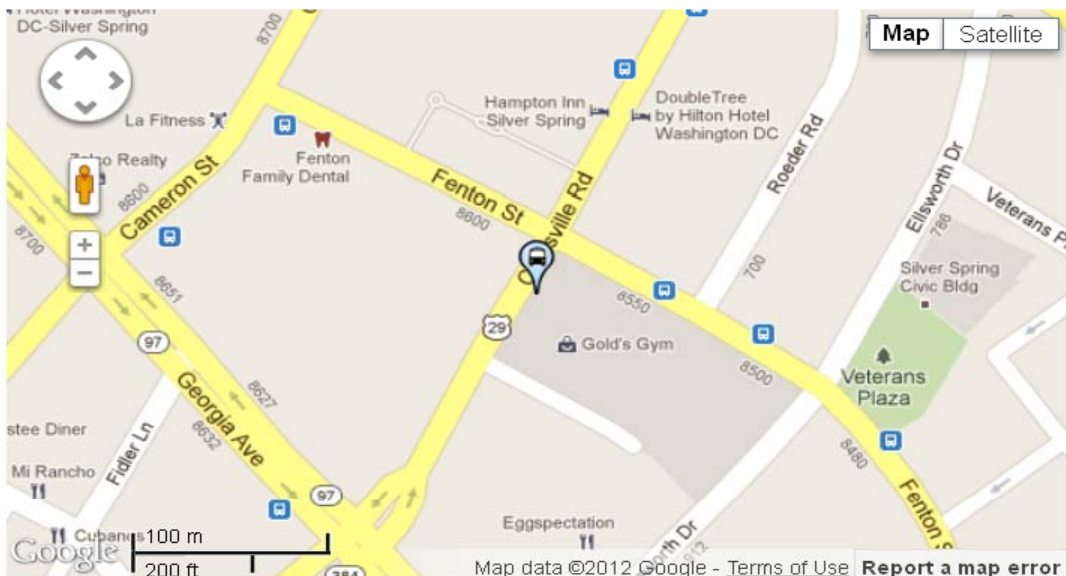


CSV

36 bus stops found:

Bus stop	OnStreet	AtStreet	Heading	Position	Route
Bus stop 14665	COLESVILLE RD	16TH ST	Northbound	Farside	Route S2 Route S4
Bus stop 14666	COLESVILLE RD	EAST WEST HWY	Northbound	Nearside	Route S2 Route S4
					Route 12 Route 13 Route 28

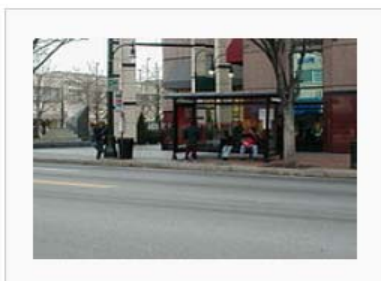
Bus stop 21094: NB COLESVILLE RD, NS FENTON ST



998 on	493 on
	131 off
192 off	505 on
	61 off



1094a



1094b



1094c

Tasks

Bus stop 21094: NB COLESVILLE RD, NS FENTON ST



998 on	493 on
	131 off
192 off	505 on
	61 off



1094a



1094b



1094c

Tasks

Portals » Dashboards » Advanced Search » Help » Search »

Page Discussion Edit History Move Watch Refresh

Main Page

Introducing "Map highlight" feature in bus stop searches. [Read more](#) [\[dismiss\]](#)



Service Interruptions

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(2012-07-06 13:18:11)



Search Bus Stops

STOPID(s):

Route:

On street:

At street:

Status:

Map highlight:



Explore Other Data

- [+] [Routes](#) (157 P)
- [+] [Park and ride lots](#) (18 P)
- [+] [Rail stations](#) (14 P)
- [+] [Transit centers](#) (5 P)
- [+] [Groups](#) (9 P)
- [+] [Organizations](#) (4 C, 6 P)
- [+] [People](#) (2 C, 9 P)
- [+] [Programs](#) (5 P)
- [+] [Maintenance schedules](#) (4 P)

Portals » Dashboards » Advanced Search » Help » Search »

Category Discussion Edit History Watch Refresh

Category:Programs

Introducing "Map highlight" feature in bus stop searches. [Read more](#) [\[dismiss\]](#)

This is the Programs category.

[Add a program](#)

Pages in category "Programs"

The following 5 pages are in this category, out of 5 total.

B

- ▶ [Bus Stop Improvement Program](#)
- ▶ [Bus Stop Maintenance Program](#)

C

- ▶ [Capital Improvements Program](#)
- ▶ [Clear Channel Shelter Program](#)

P

- ▶ [Private Developer Improvements Program](#)

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Add Task - Montgomery County Transit - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Welcome To Sweet Home

Add Task - Montgomery Cou... +

wiki.rideonbus.com/wiki/Special:FormEdit/Task?Task[Bus+stop]=Bus+stop+24150

Bing

Getting Started Latest Headlines Customize Links(1) Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Date completed: July 2012

Status*: New

Priority: 2

Assigned to*: Jovita Pena,

C.C.:

Program: Clear Channel Shelter Program

Project:

*: required fields

Add a task tag

Complete?

- inspect-investigate
- remove
- install
- clean-remove graffiti from
- move-relocate
- replace-reinstall
- update
- photograph

Add Task - Montgomery County Transit - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Welcome To Sweet Home

Add Task - Montgomery Cou... +

wiki.rideonbus.com/wiki/Special:FormEdit/Task?Task[Bus+stop]=Bus+stop+24150

Bing

Getting Started Latest Headlines Customize Links(1) Free Hotmail Windows Marketplace Windows Media Windows

Add Task

Introducing "Map highlight" feature in bus stop searches. [Read more](#)

[dismiss]

Task Information

Contacts

Cost & Materials

Bus stop*:

Bus stop 24150

Target date:

16 July 2012

Date completed:

July 2012

Status*:

New

Priority:

2

Assigned to*:

Jovita Pena,

C.C.:

Program:

Clear Channel Shelter Proj

Project:

*: required fields

- Landing pad
- Light bulb
- Location
- Luminaire
- Luminaire box
- Median
- Median cut-through
- Pole
- Pole sleeve
- Reflector sign
- Retaining wall
- Ring sign
- Route sticker
- Schedule
- Shelter
- Sidewalk
- Sidewalk connector
- Sign
- TIA
- Temporary notice sign

Add a task tag

inspect-investigate

Complete?

Remove

Add another

Comments

start

4 Microsoft ...

Add Task - M...

My 2GB (E:)

Microsoft Pow...

7:57 PM

Using the Database to address the Implementation Process

Lee Winestone - Montgomery County Transit - Mozilla Firefox

File Edit View History Bookmarks Tools Help

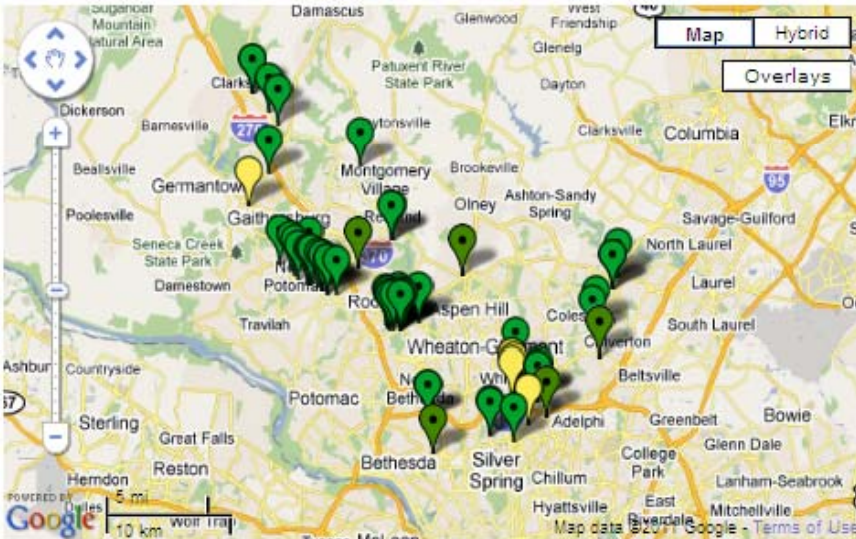
http://174.129.10.10/wiki/User:LWinestone

Most Visited Getting Started Latest Headlines Free Hotmail Suggested Sites Web Slice Gallery

Lee Winestone - Montgomery County...

Open tasks for Lee Winestone

🟡 = High 🟢 = Medium 🟢 = Low



Map Hybrid Overlays

January 2011 ◀ Today ▶

Go to month

Open tasks

Task	Task tag
Task 454	replace pad
Task 454	install sidewalk
Task 459	improve bus stop
Task 466	install pad
Task 467	install sidewalk to intersection
Task 467	install pad
Task 474	Install connector
Task 474	Move pad off storm drain
Task 475	install connector to sidewalk
Task 476	install connector to sidewalk
Task 477	install connector to sidewalk
Task	inspect stop

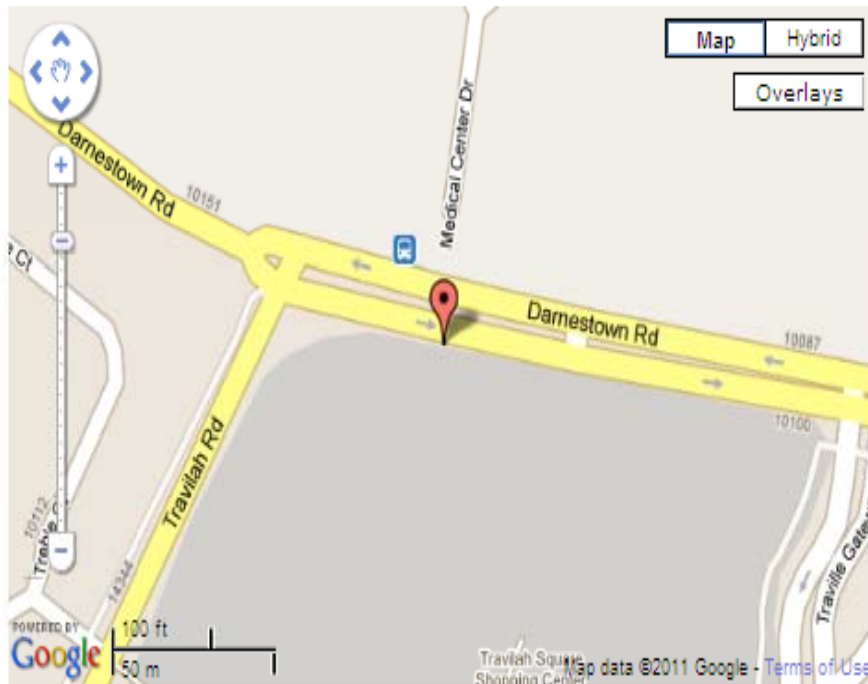
Done

Start Lee Wineston...

5:04 PM

Task 502

Bus stop 21656: EB DARNESTOWN RD, FS TRAVILAH RD



Task tag list

- ▶ install pad
- ▶ install sidewalk
- ▶ install ADA Ramp

0% complete (0 of 3 tasks)



	Number of stops	Total cost	Average cost per stop	New sidewalk length (ft)	New pad area (sq ft)	Number of new ADA ramps
BIP FY07	160	682,025.48	4,262.66	5,811	25,242.5	84
BIP FY08	480	1,712,287.99	3,567.27	14,588.5	36,613	229
BIP FY09	623	1,267,762.04	2,034.93	11,768	33,064	242
BIP FY10	391	1,221,635.84	3,124.39	14,275	19,196	193
BIP FY11	360	1,083,156.97	3,008.77	11,979	17,351	219
BIP FY12	243	877,448.04	3,610.9	8,935	11,164	115
BIP FY13	0					

Overview

TODO: INSERT information regarding the program's mission, start date, proposed end date, funds, etc.

Planning & tracking

- ▶ Search for improved bus stops
- ▶ [Template:Improvement](#): used for appending improvement information to [tasks](#). Such information includes new sidewalk length, new pad square footage, and the number of new ramps installed (source: [DCD](#)).

Ridership data analysis

Right-of-way analysis

Many bus stops that need to be improved fall outside of the public right-of-way. The Bus Stop Improvement Program is not able to proceed with

Introducing "Map highlight" feature in bus stop searches. [Read more](#)

[dismiss]

Start date 1 June 2012

End date 30 June 2012

Run query

Bus Stop Improvement Program

Asset Breakdown

ADA ramp-curb cut (total=3)

- 1. Install (3)

Kneewall (total=7)

- 1. Install (7)

Landing pad (total=22)

- 1. Install (20)
- 2. Replace-reinstall (2)

Location (total=1)

- 1. Inspect-investigate (1)

Sidewalk (total=3)

- 1. Install (3)

Task Breakdown

- 1. New (22)
- 2. Deferred (1)

EFFICIENCY = 4.35%

Bus Stop Maintenance Program

Asset Breakdown

Destination sticker (total=1)

- 1. Install (1)

ID sticker (total=2)

- 1. Install (2)

Landing (total=4)

- 1. Photograph (2)
- 2. Inspect-investigate (2)

Pole (total=5)

- 1. Replace-reinstall (3)
- 2. Install (2)

Route sticker (total=3)

- 1. Install (3)

Sign (total=8)

- 1. Replace-reinstall (3)
- 2. Install (2)
- 3. Clean-remove graffiti from (2)
- 4. Inspect-investigate (1)

Temporary notice sign (total=1)

- 1. Install (1)

Trash can (total=1)

- 1. Remove (1)

Tree-plant overgrowth (total=1)

- 1. Remove (1)

Task Breakdown

- 1. Completed (18)
- 2. New (1)

EFFICIENCY = 94.74%

Clear Channel Shelter Program

Asset Breakdown

Bench (total=1)

- 1. Inspect-investigate (1)

Electric box (total=1)

- 1. Inspect-investigate (1)

Glass shelter panel (total=8)

- 1. Replace-reinstall (6)
- 2. Install (1)
- 3. Clean-remove graffiti from (1)

Landing pad (total=5)

- 1. Install (4)
- 2. Replace-reinstall (1)

Location (total=1)

- 1. Install (1)

Shelter (total=22)

- 1. Install (15)
- 2. Clean-remove graffiti from (4)
- 3. Replace-reinstall (2)
- 4. Photograph (1)

Trash can (total=3)

- 1. Remove (2)
- 2. Install (1)

Task Breakdown

- 1. Completed (31)
- 2. New (4)

EFFICIENCY = 88.57%

Edit bus stop: Bus stop 24150

- Overview
- Media
- Trash cans
- Benches
- Signs
- Schedules
- Shelters
- Pedestrian Access
- Comments & Notes

On Street

Alias

At Street

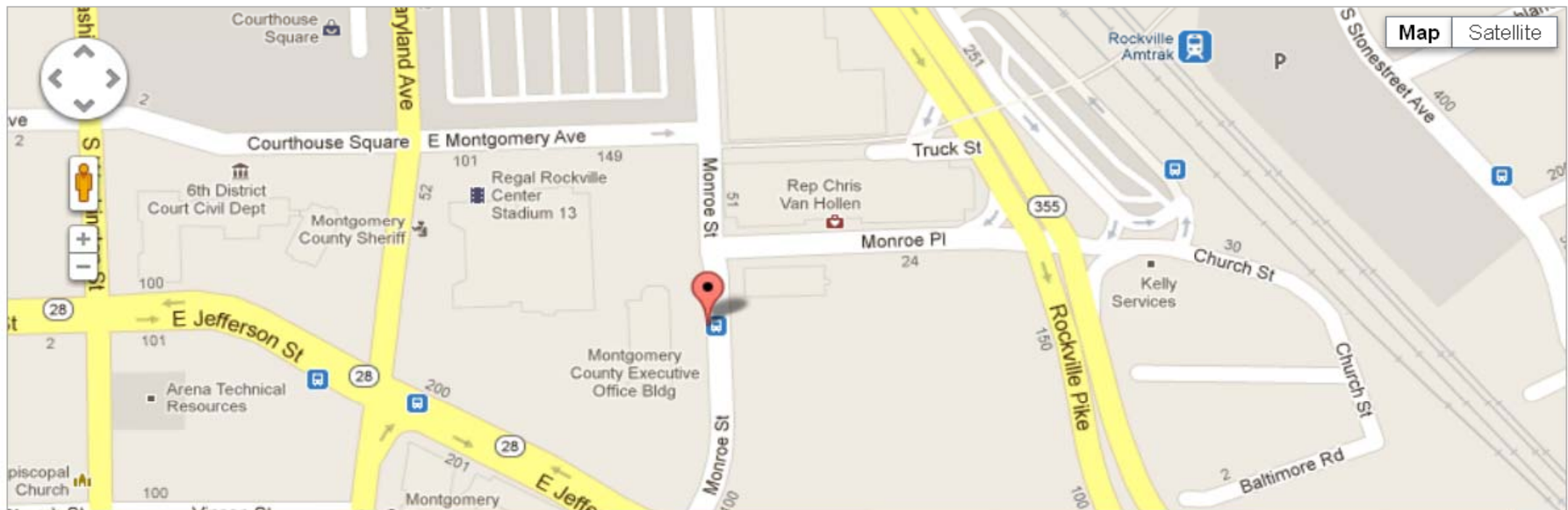
Alias

Heading

Position

Status

Route(s)



Bus stop dashboard

Introducing "Map highlight" feature in bus stop searches. [Read more](#)

[dismiss]

Service

Bus stop overview		total=5,264
	Count	
Minor provider stops	35	
Ride-On exclusive stops	3,795	
Shared stops	1,061	
WMATA exclusive stops	373	

Ride-On stops		total=4,856
	Count	
Ride-On exclusive stops	3,795	
Shared stops	1,061	

WMATA stops		total=1,434
	Count	
Shared stops	1,061	
WMATA exclusive stops	373	

Shelters

Shelter types		total=744
	Count	
Built Pittsburgh shelters	17	
Built ad shelters	387	
Built non-ad shelters	44	
DDOT shelters	2	
Gaithersburg shelters	7	
Non-standard shelters	103	
Slimline Dome shelters	65	
Takoma Park shelters	3	
WMATA shelters	116	

Shelter electrification progress		total=719
	Count	
Active electrified shelters	274	
Active unelectrified shelters	382	
Inactive electrified shelters	2	
Inactive unelectrified shelters	61	

Shelter lighting progress		total=276
	Count	
Active lit shelters	269	
Active unlit shelters	5	
Inactive lit shelters	2	
Inactive unlit shelters	0	

Non-ad shelter progress		total=67
	Count	
Built non-ad shelters	44	
Planned non-ad shelters	20	
Requested non-ad shelters	3	

Ad shelter progress		total=410
	Count	
Built ad shelters	387	
Planned ad shelters	22	
Requested ad shelters	1	

Pittsburgh shelter progress		total=36
	Count	
Built Pittsburgh shelters	17	
Planned Pittsburgh shelters	19	
Requested Pittsburgh shelters	0	





05.29.2009

Before and After → ADA Access





01.20.2011

Before and After → Pad & Knee Wall



Before and After → Relocation/Sidewalk

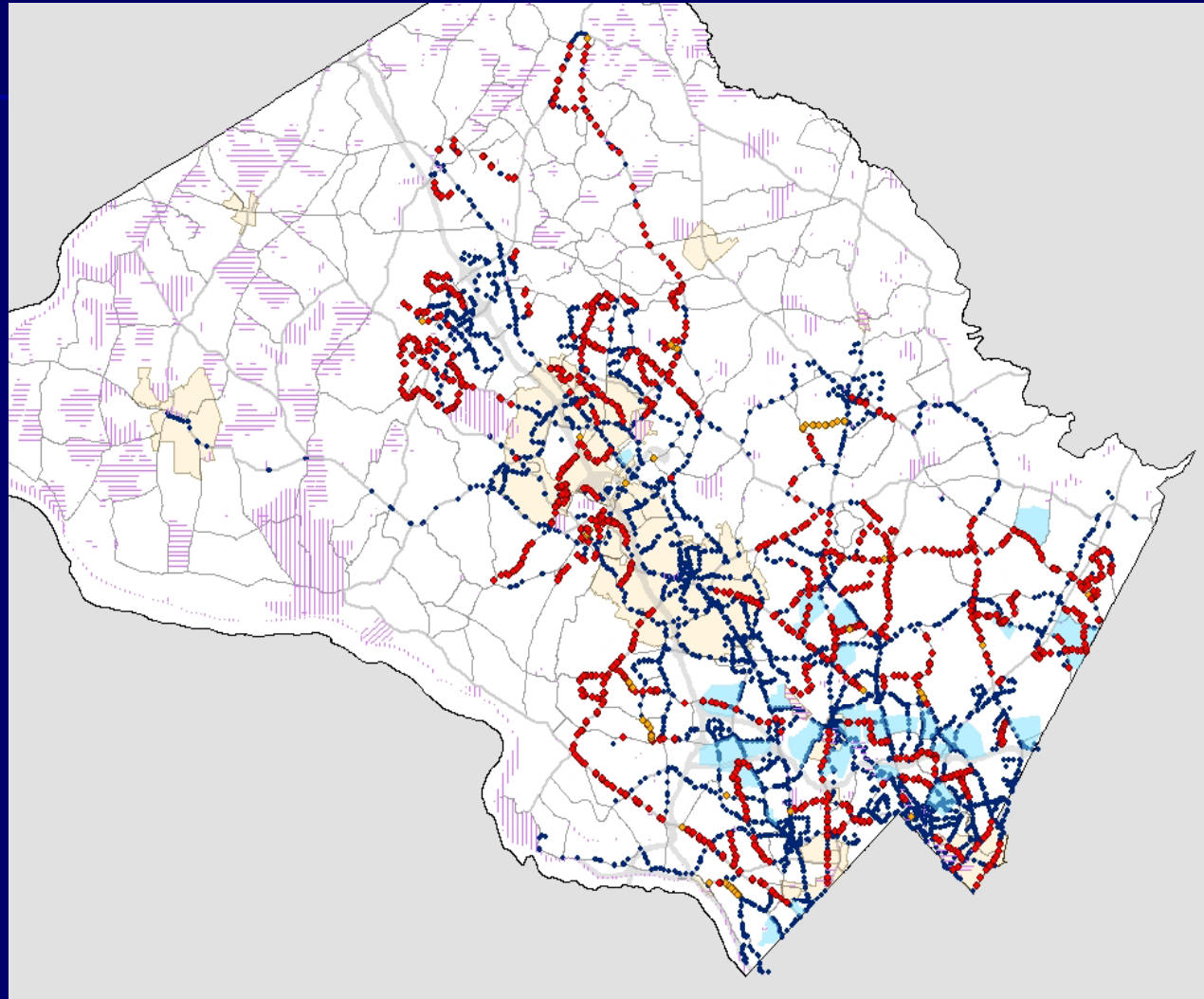




10.24.2008

Program Progress (as of June 2012)

- Total number of bus stops = 5,264
- Number of stops planned for improvements = 3,458 (65.89%)
- Number of stops requiring construction = 2,257 (65.26%)



Keys to Our Success

- Team Approach to Collaborative Solutions
 - Traffic Engineering
 - Planned Roadway construction
 - Planned Sidewalk construction
 - Municipalities
 - State Highway
 - WMATA

Keys to Our Success

- Leveraging Other Projects/Funding
 - Sidewalks Program
 - ADA funding
 - Traffic Calming
- Field Design (Design-Build)
- Building Attractive Features
- Making Tangible Safety Improvements in Real Time

**Presented by:
Stacy Coletta, Manager
Passenger Facilities Unit
Montgomery County Transit Services
240-777-5836**

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