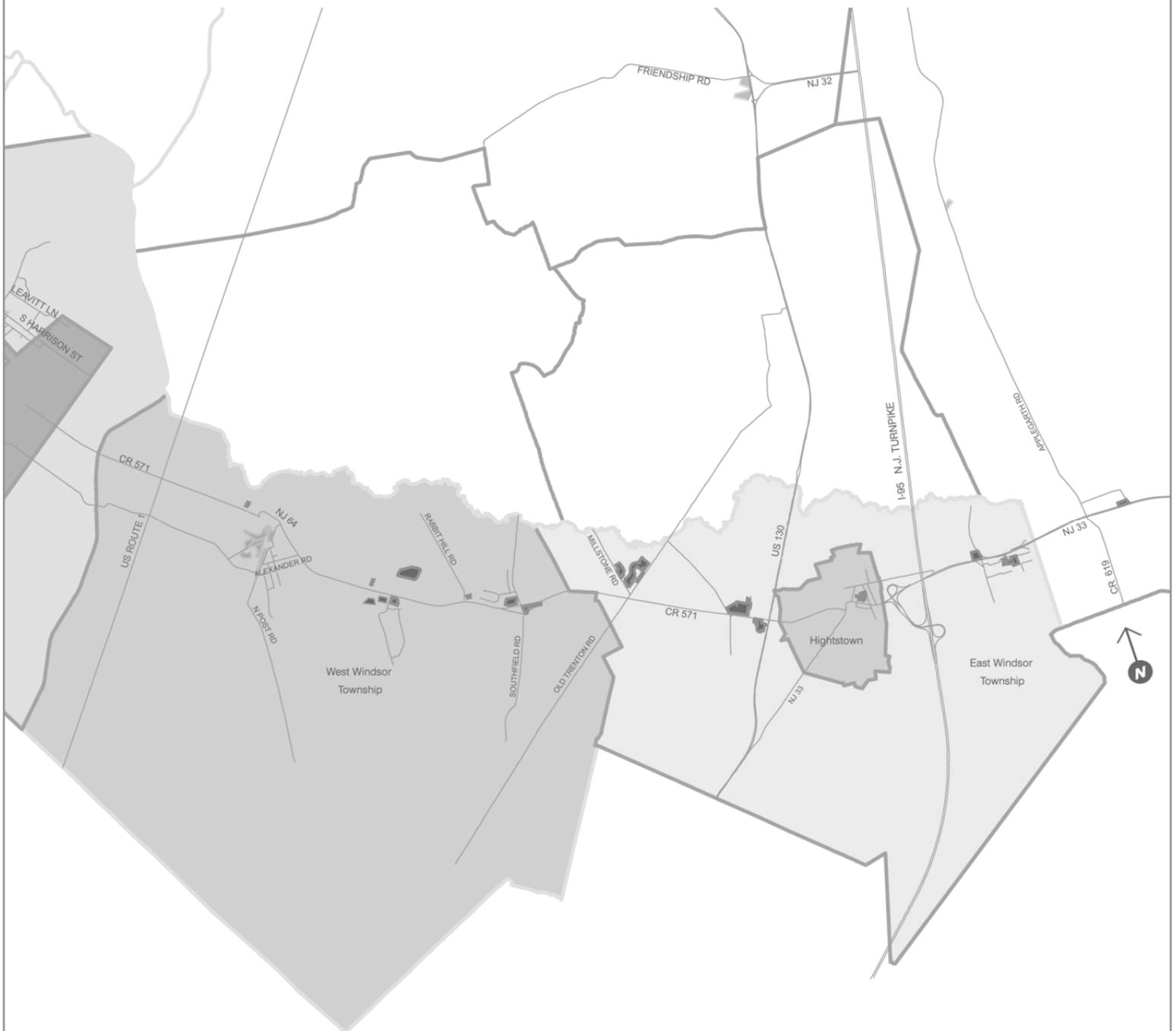




November 2012

## Summary of Findings





The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving

transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region — leading the way to a better future.



The symbol in our logo is adapted from the official DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

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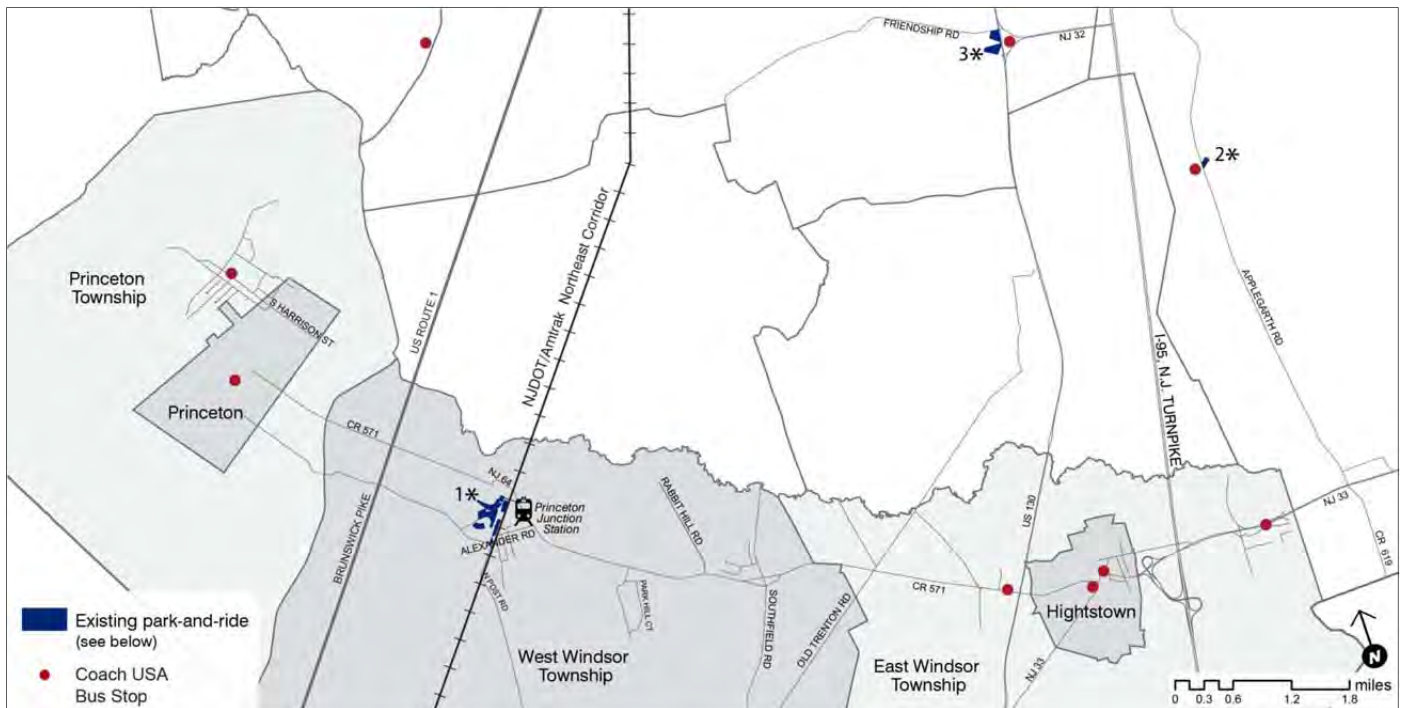
## Introduction

The purpose of this project is to evaluate feasible locations for park-and-ride facilities along CR 571 in Mercer County. One or more new or expanded lots would be usable by Coach USA services, municipal or local shuttles, and near-term bus rapid transit (BRT) routes planned by the New Jersey Transit Corporation (NJ TRANSIT) and included in the *Mercer County Future Bus Plan* (Delaware Valley Regional Planning Commission [DVRPC] Publication #10035). The best candidate locations would be those that could be implemented relatively quickly and inexpensively and which are located in places that would effectively serve both westbound trips toward US Route 1 and northbound trips via I-95. Additionally, park-and-ride lots are best where there is existing demand and where bus operations would not be impaired by congestion or exacerbate safety concerns.

With these requirements in mind, the evaluation that follows summarizes existing park-and-ride facilities in the corridor, details potential new and expanded locations and their attributes, and assigns a preliminary rating for each location based on selected criteria. Using the technical analysis, and stakeholder feedback that followed, this report suggests five sites for advancement as park-and-ride locations. Four of these sites, **West Windsor Community Park**, **Southfield Shopping Center**, **Millstone Road** and **East Windsor Village**, would be new facilities at existing locations. The fifth site is a recommended expansion of the existing park-and-ride site at **Twin Rivers Shopping Center**.

## Summary of Existing and Potential Facilities

There are several existing park-and-ride facilities in the CR 571 corridor and surrounding area. The summary below explores where these facilities are located, their capacity, and which transit routes they serve.



Source: DVRPC, 2011.

## Existing Facilities

### 1\*. Princeton Junction Station: Lots 1—11

These 11 lots serve the Princeton Junction transit hub, which provides access to NJ TRANSIT and Amtrak Northeast Corridor trains, NJ TRANSIT bus lines, Dinky service to Princeton, and several local shuttles. These lots combined have 3,550 spaces on about 30 acres and are operated and maintained by the West Windsor Parking Authority.

### 2\*. Applegarth Park-and-Ride

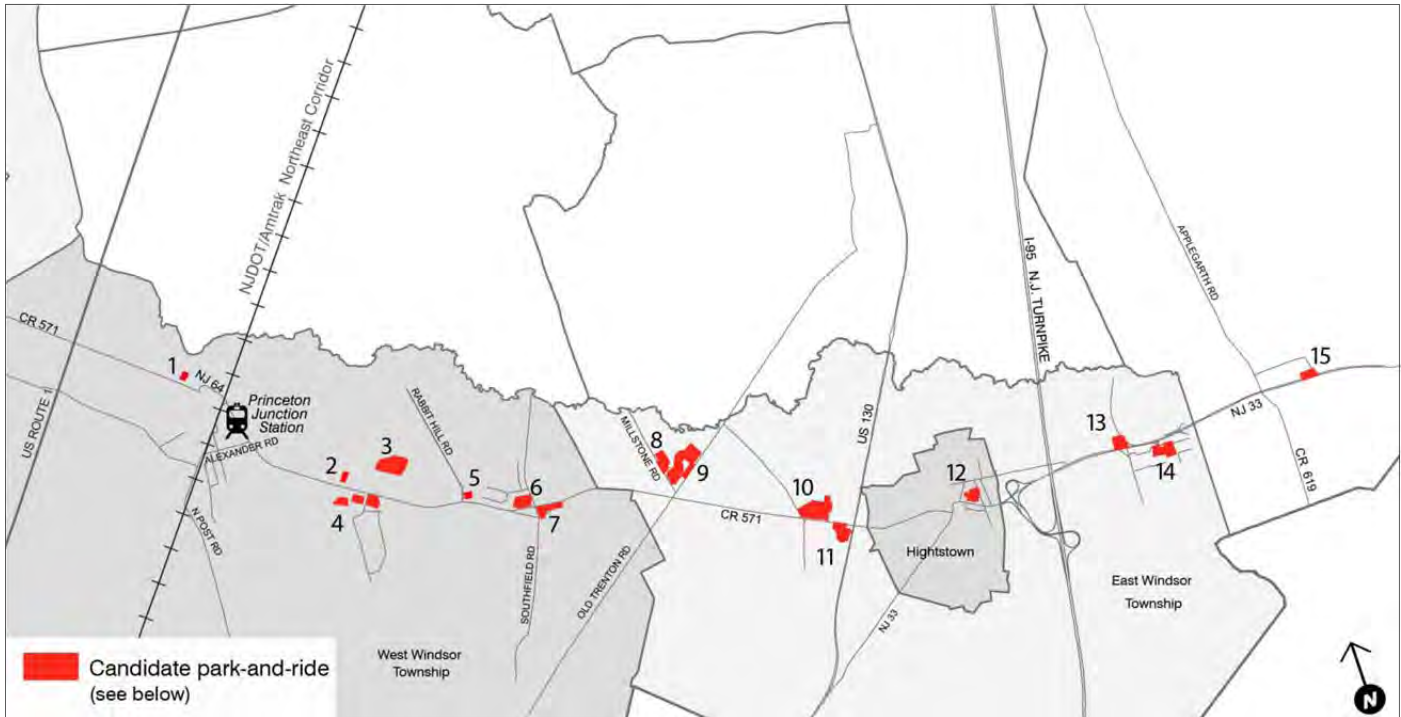
Located in Monroe Township, the Applegarth Park-and-Ride provides spaces for users of the Monroe Township Out-of-Town Shuttle and Coach USA Route 300. After a recent expansion, Applegarth has 244 spaces on about two acres. All spaces are permit parking for Monroe Township residents only.

### 3\*. NJ Turnpike, Exit 8A

The NJ Turnpike, Exit 8A lot is a major park-and-ride facility in South Brunswick. After completion of a recent expansion, the lot has 927 spaces. Coach USA Routes 300 and 600 provide service to commuters using this facility.

## Candidate Locations for New Park-and-Ride Facilities

After surveying existing sites, an exhaustive list of candidate locations was assembled through a review of prior work, a GIS parcel analysis, and municipal and stakeholder outreach. Below is the list developed through this process. Under each lot title, the primary originating source is listed. Additionally, relevant information was gathered for each site and is presented here to provide a better understanding of the context for each. For lots where analysis indicated that a variance might be needed, the variance in question would be related to required parking minimums and parking capacity.



Source: DVRPC, 2011.

1. Princeton Korean Community Church, West Windsor  
*Source: West Windsor Township*  
 This location is approximately one-half mile west of Princeton Junction Station. The parking lot is owned by the Princeton Korean Community Church and could be a shared-use facility. The minimum zoned parking requirement for this land use type and building size remains unclear; a variance may be required.

  - Zoned R-20, Low/Medium Density Residential
  - 32 stalls, up to .3 acres
  - About 20 percent weekday occupancy
  
2. Prince of Peace Lutheran Church, West Windsor  
*Source: West Windsor Township*  
 This existing lot is owned by the Prince of Peace Lutheran Church and is adjacent to the West Windsor Community Park. This would be a shared-use facility that would have direct pedestrian access to and from the park. Analysis of land use and municipal parking requirements suggests that currently available parking is at or near the minimum required by ordinance.

  - Zoned R-1/C, Residential/Conservation
  - 49 stalls, up to .4 acres
  - About 30 percent weekday occupancy
  - Direct trail access
  
3. West Windsor Community Park, West Windsor  
*Source: West Windsor Township*  
 Existing parking at West Windsor Community Park could become a shared-use parking facility. The park is owned and maintained by the township and surrounded by recreational uses. Based on current municipal ordinances, it is unclear if a variance would be required for a shared-use arrangement.

  - Zoned R-1/C, Residential/Conservation
  - 243 stalls, up to 3 acres
  - Very low weekday occupancy
  - Direct trail access

4. West Windsor Business Park, West Windsor  
*Source: Parcel Analysis*  
 The West Windsor Business Park is another potential shared-use facility. The lots are used by the tenants of the office complex and are owned by S & S Investments. An analysis of municipal parking requirements suggests that currently only the minimum required number of spaces is provided, and consequently a variance would be necessary for shared use.
  - Zoned P, Professional Office
  - 353 existing stalls, up to 5 acres
  - About 60 percent occupancy
  - Direct trail access
  
5. Mulligan Property, West Windsor  
*Source: West Windsor Township*  
 This is an undeveloped parcel that would require a newly constructed lot. The parcel is owned by Thomas Mulligan and surrounded by low-density residential uses. The lot does have direct access to Rabbit Hill Road and CR 571.
  - Zoned P-3, Professional Office/Residential
  - Up to .5 acres
  - Accessible by routes favorable to bicycling
  - Requires new construction
  
6. Southfield Shopping Center, West Windsor  
*Source: 2007 Central Jersey Transportation Forum (CJTF) Meeting Notes on Suggested New Shuttle Stops*  
 The Southfield Shopping Center is a commercial site with ample unused parking. The property is owned by Southfield Commons Associates and could be a shared-use location. An analysis of parking requirements for this building size and type suggests that only the minimum number of spaces are provided, and consequently a variance would be necessary for shared use.
  - Zoned B-2, Neighborhood Center
  - 498 stalls, up to 5 acres
  - About 35 percent occupancy
  - Accessible by routes favorable to bicycling
  
7. Village Center, West Windsor  
*Source: Parcel Analysis*  
 This property is a newly developed shopping center that has yet to be fully occupied. It is owned by WWM Properties, LLC, and features interior bike lanes and benches, making it accommodating for many modes of access. Analysis suggests that current available parking is at or near the minimum required by municipal ordinance, and surrounding wetlands prevent further expansion.
  - Zoned P-1, Professional Office
  - Up to 3 acres
  - Accessible by routes favorable to bicycling
  
8. Millstone Road, East Windsor  
*Source: East Windsor Township, Parcel Analysis*  
 This parking lot, just north of the Windsor Corporate Park, is underutilized and could be a shared-use facility or used exclusively as a park-and-ride. It is owned by the same firm as the Windsor Corporate Park, Windsor Limited Partnership of New Jersey, and likely has served as an auxiliary facility to the Corporate Park.
  - Zoned RO, Research Office
  - 583 stalls, up to 5 acres
  - Presently not occupied
  - Accessible by routes favorable to bicycling
  
9. Windsor Corporate Park, East Windsor  
*Source: East Windsor Township, Parcel Analysis*  
 This office park is owned by Windsor Limited Partnership of New Jersey. It is located at the intersection of Millstone Road and CR 535 (Old Trenton Road) and could house a shared-use facility. The lot is also located along the route of East Windsor's Princeton Junction Shuttle. Analysis suggests that the offered parking is at or near the minimum required for a building this size and type, and a variance may be necessary for shared use.
  - Zoned RO, Research Office
  - 1,695 stalls, up to 17 acres
  - About 45 percent occupancy
  - Accessible by routes favorable to bicycling



10. East Windsor Village, East Windsor

*Source: NJ TRANSIT staff*

This shopping center is located at the intersection of One Mile Road and CR 571. A shared-use agreement would have to be arranged with the property owner, Kir East Windsor, LLC. The lot is located along the Princeton Junction Shuttle route as well as the Monroe Township Out-of-Town Shuttle. Current parking may be at or near the minimum levels required by municipal ordinance and therefore a variance may be necessary for shared use.

- Zoned HC, Highway Commercial
- 1,389 stalls, up to 15.4 acres
- About 20 percent occupancy

11. Windsor Heights Shopping Center, East Windsor

*Source: NJ TRANSIT staff*

At the intersection of US 130 and CR 571, the Windsor Heights Shopping Center is a potential location for a shared use facility. This site is also a stop on Coach USA's Route 300 commuter service to New York City. The shopping center property is owned by Paragano Associates.

- Zoned HC, Highway Commercial
- 587 stalls, up to 6 acres
- About 30 percent occupancy

12. St. Anthony of Padua Church, Hightstown

*Source: 2007 CJTF Meeting Notes on Suggested New Shuttle Stops*

The parking lot for the St. Anthony of Padua Church is a potential shared-use facility within Hightstown. The lot is owned by the church. It is also about 500 feet from the Coach USA Route 300 bus stop at Franklin and Broad streets.

- Zoned R-3, Residential
- 264 stalls, up to 3 acres
- About 5 percent weekday occupancy
- Direct Hightstown Trail Network access

13. Former Suburban Bus Garage, East Windsor

*Source: NJ TRANSIT staff*

This property, located at NJ 33 and Probasco Road in East Windsor, is currently vacant after previously serving as a garage for Suburban Bus Lines. The lot is existing; however, it is likely that if used for a park-and-ride facility, that would be the single use of the site. Also, improvements to the parking area and potentially remediation would be required for use. The site is owned by Peter A. Karl, III.

- Zoned RO, Research Office
- Up to 5 acres
- Not occupied
- Accessible by routes favorable to bicycling

14. Twin Rivers Shopping Center, East Windsor

*Source: NJ TRANSIT Near-Term BRT Plan*

This shopping center, owned by the Twin Rivers Partnership, represents a potential for an expansion of an existing park-and-ride facility into a larger shared-use role, as it already serves as a park-and-ride facility for Coach USA Route 300 buses. However, current parking may be at or near the minimum required by ordinance for a building of this size and type, and a variance may be necessary for additional park-and-ride use. A pedestrian underpass connects the existing lot and bus shelter to residences north of NJ 33, providing excellent pedestrian access.

- Zoned PUD, Planned Unit Development
- 618 stalls, up to 6 acres
- About 55 percent occupancy
- Accessible by routes favorable to bicycling

15. Monroe Lot, Monroe

*Source: NJ TRANSIT Near-Term BRT Plan*

This lot is located in Middlesex County at the intersection of NJ 33 and Bentley Road in Monroe Township. The lot is currently used as an auto dealership with one residential/commercial structure. Ownership is unknown.

- Zoned HC, Highway Commercial
- 246 stalls, up to 3 acres
- About 30 percent occupancy



## Candidate Location Scoring Summary

After developing the list of all possible sites for a new or expanded park-and-ride location in the CR 571 corridor, DVRPC staff developed criteria based on the factors affecting desirability of each site. These criteria, which are grouped into categories, developed from best practices, discussions with stakeholders, and also consideration of local conditions and issues. They provide a sense of which sites are stronger or more favorable based on estimates of demand, readiness for use, and other attributes of their locations. Each of these categories of factors is considered to be a key indicator of the success of a park-and-ride site. Detailed explanations of the criteria, how they were scored, and the resulting ratings are presented in the text, maps, and tables that follow. Finally, an initial ranking of the sites was developed based on the quantitative analysis of each criteria, with each criteria weighted equally in developing the composite score. This scoring and ranking is presented in the table at the end of the section.

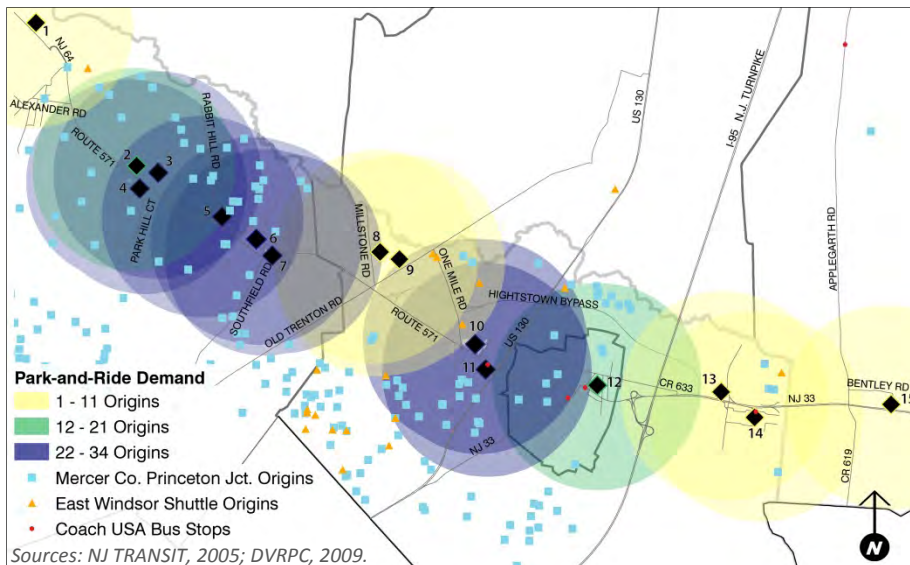
## Demand Indicators

The purpose of this group of criteria is to rate each candidate site with regard to potential demand for use.

### Existing Transit Demand

While it will be important for a new facility to attract new riders, the ability of a location to capture existing riders by offering them a shorter auto trip or the convenience of bike/pedestrian accessibility is also an important consideration. Passenger origins for both Princeton Junction Station and the East Windsor Shuttle were known from recent NJ TRANSIT and DVRPC surveys and are mapped below in the context of candidate park-and-ride locations, with each location being rated on the number of total origins within a one-mile radius of the park-and-ride site.

**Scoring:** The maximum score for this criterion was two. Locations were placed into three groups based on the number of nearby origins; locations with the highest number were awarded two points, followed by one point for the next highest group, then zero. Locations that already serve as park-and-rides for Coach USA service (Windsor Heights and Twin Rivers) were awarded one additional point.



Source: DVRPC, 2010.  
Windsor Heights Shopping Center: an existing park-and-ride location for Coach USA passengers.

Map of Existing Transit Demand within One Mile of Each Lot

- |                                      |                               |                           |                                     |                                 |
|--------------------------------------|-------------------------------|---------------------------|-------------------------------------|---------------------------------|
| 1. Princeton Korean Community Church | 4. West Windsor Business Park | 7. Village Center         | 10. East Windsor Village            | 13. Former Suburban Bus Garage  |
| 2. Prince of Peace Lutheran Church   | 5. Mulligan Property          | 8. Millstone Road         | 11. Windsor Heights Shopping Center | 14. Twin Rivers Shopping Center |
| 3. West Windsor Community Park       | 6. Southfield Shopping Center | 9. Windsor Corporate Park | 12. St. Anthony of Padua Church     | 15. Monroe Lot                  |

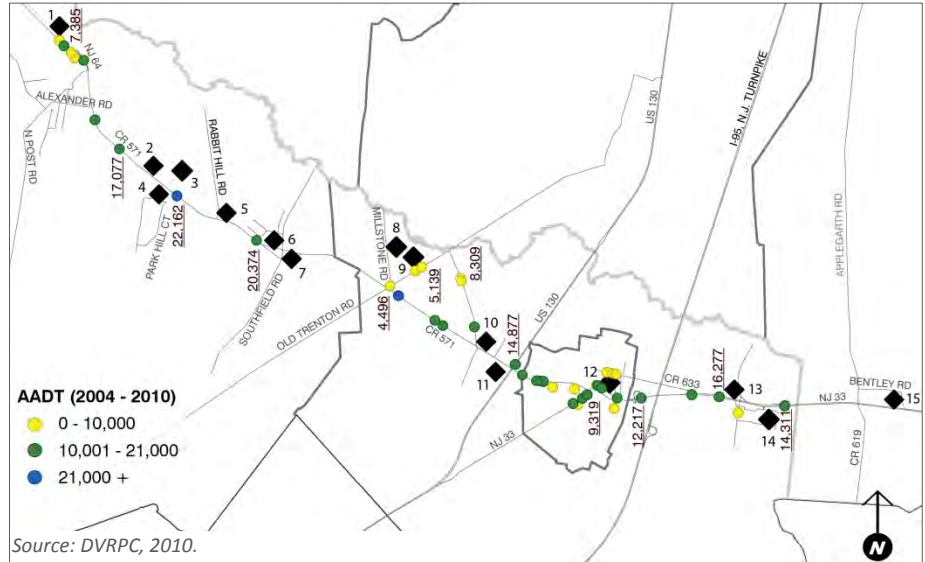
## Annual Average Daily Traffic (AADT)

The average number of passing vehicles is an indicator of the potential number of riders making parallel automobile trips who could be directly captured by the lot without changing existing patterns of behavior. Simply, the higher the AADT, the higher the potential number of lot users.

**Scoring:** Available traffic counts along the study corridor range from about 7,500 to 23,000 vehicles. Lots were associated with the count that was most proximate, and these values were grouped into three categories: a low number of vehicles (0—10,000) for zero points, medium (10,000—21,000) for one point, and high (21,001+) for two points.



Source: DVRPC, 2010.  
Prince of Peace Lutheran Church: an annual average of 17,000 vehicles passing daily.



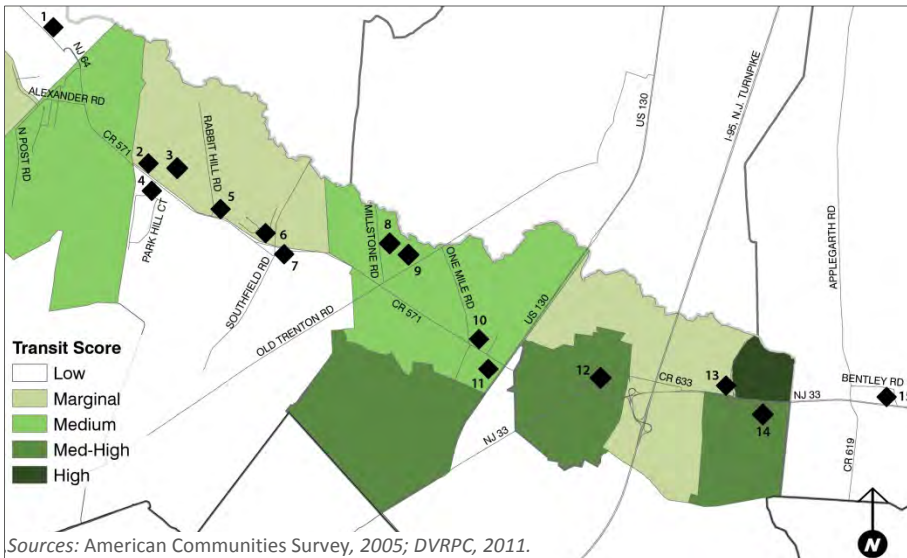
Source: DVRPC, 2010.

Map of Annual Average Daily Traffic Along the Corridor, 2004—2010

## Transit Score

Transit Score is a measure developed by DVRPC and NJ TRANSIT that summarizes the ability of a location to support transit services based on the densities of population, employment, and zero-car households. Transit Score is a proxy for the demand for transit, and, accordingly, candidate lots in traffic analysis zones (TAZs) with higher Transit Scores are more likely to experience higher demand.

**Scoring:** Utilizing the 2005 Transit Scores for the DVRPC region, lots were assigned the score of the TAZ in which they are located. Unlike the categorical values shown in the map below, the raw scores were used in the calculation of the composite ranking.



Sources: American Communities Survey, 2005; DVRPC, 2011.

Map of Transit Scores for Traffic Analysis Zones that Include or Are Adjacent to CR 571



Source: DVRPC, 2010.  
St. Anthony of Padua Church: relatively high residential density contributing to the medium-high Transit Score.

- |                                      |                               |                           |                                     |                                 |
|--------------------------------------|-------------------------------|---------------------------|-------------------------------------|---------------------------------|
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## Readiness

The purpose of this group of criteria is to assess how challenging it would be to prepare a candidate site for park-and-ride use.

### Status

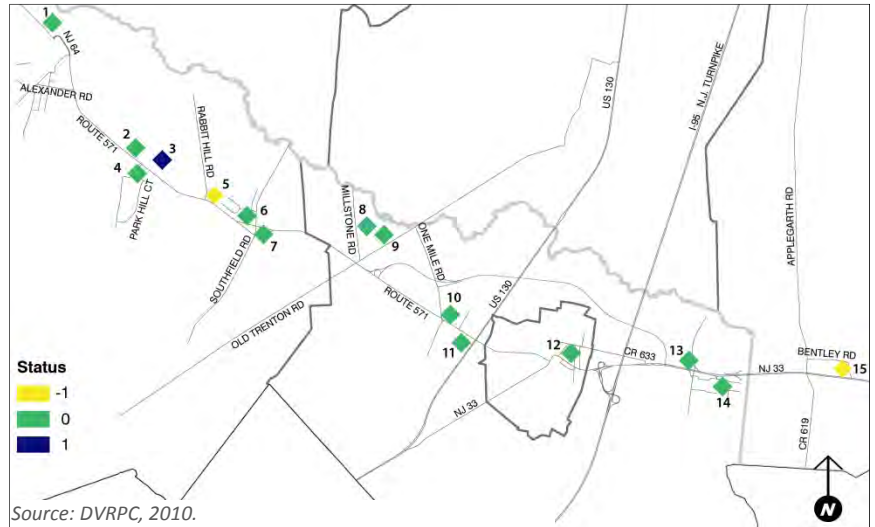
New construction is not only more expensive, but it also extends the timeline necessary for project implementation. Additionally, disturbing the soil and adding new impervious surface has detrimental impacts on the ecology of an area. As a result, adapting existing facilities is preferable. Existing facilities that are already publicly owned would further speed project implementation.

**Scoring:** Scores for this category range from +1 point to -1 point, with sites receiving +1 point if they are publicly owned and would not require significant construction, zero points if they would not require construction but are privately owned and/or have zoning or permitting challenges, and -1 point if there are land ownership/permitting issues and significant construction required.



Source: DVRPC, 2010.

Mulligan Property: currently undeveloped, would require new construction.



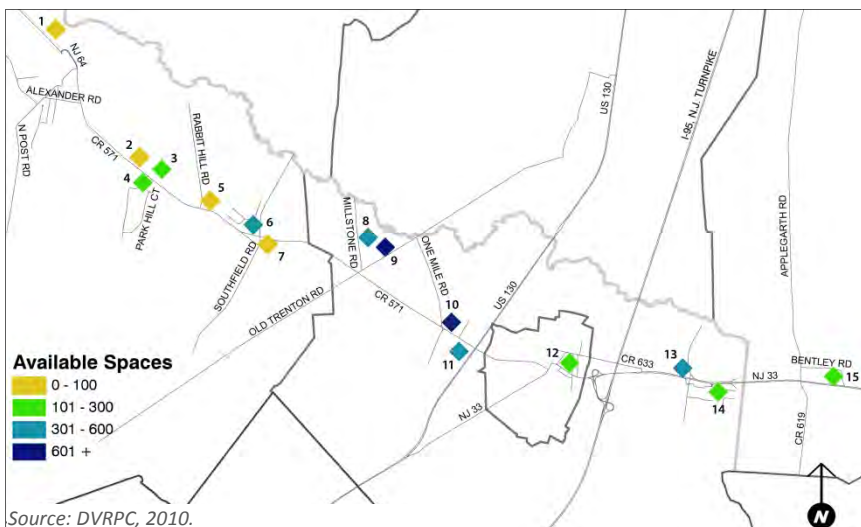
Source: DVRPC, 2010.

Map of Development Status of Potential Park-and-Ride Sites

### Space Availability

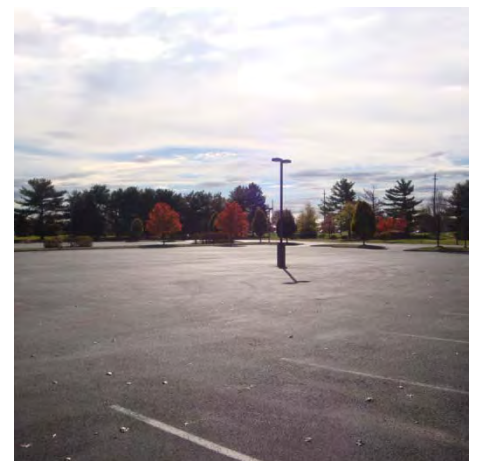
In addition to immediate demand, the ability of a candidate location to handle long-term growth in use is an important consideration. Ideally, a new park-and-ride location would be able to accommodate near- and long-term use without creating problems for current users of the lot (for a shared-use facility).

**Scoring:** To calculate the number of available spaces, the current number of spaces was counted for each site. This number was then multiplied by current occupancy rates, estimated from aerials and site visits. These rates represent typical lot utilization. After subtracting occupied spaces from the total, the remaining was determined to be available for park-and-ride use. For the candidate site that is undeveloped, the available space was considered to be the number of developable spaces which was estimated using standard stall dimensions. These values were then grouped into quantiles, with each quantile bin being assigned a score ranging from zero to three.



Source: DVRPC, 2010.

Map of the Number of Available Spaces in Each Lot



Source: DVRPC, 2010.

Windsor Corporate Park: ample available stalls.

- |                                      |                               |                           |                                     |                                 |
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## Location

The purpose of this group of criteria is to evaluate candidate locations on their road network context, land use context, and accessibility, then quantify how these factors may enhance or detract from a location.

## Crashes

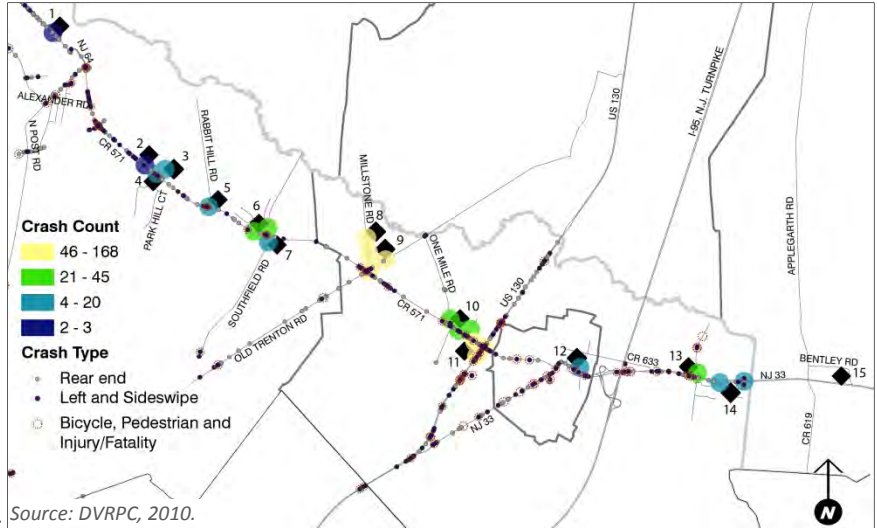
Areas with existing safety issues are less desirable locations for park-and-ride facilities, which would bring additional traffic. Therefore, locations where access to candidate lots is already problematic (as reflected by a relatively high number of crashes) should be viewed less favorably.

**Scoring:** For each lot, the intersections and driveways used to access the site were identified and 500-foot buffers applied. New Jersey Department of Transportation (NJ DOT) crash data for 2006—2009 was filtered to include only rear-end, sideswipe, and left-turn crashes, as these are the crash types most closely associated with entering or exiting a parking lot. Added to these crashes were pedestrian and bicycle crashes and any other injury and fatality crashes for all crash types. These identified crashes were summed for each buffer. For locations with more than one access point, the lot total is the summation of the crashes for each access point. These totals were then grouped into quantiles, ranked high to very low, and assigned a score ranging from zero (high crashes) to three (very low crashes).



Source: DVRPC, 2010.

Windsor Heights Shopping Center: has the highest concentration of crashes among candidate locations.



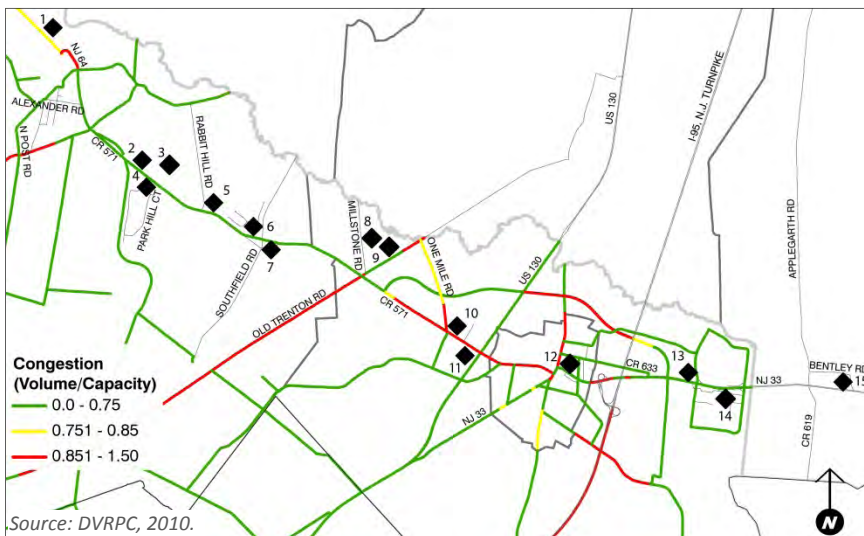
Source: DVRPC, 2010.

Map of Crashes Along the Corridor from 2006 to 2009

## Congestion

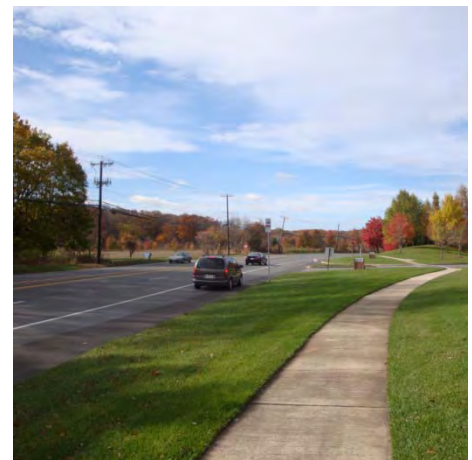
Although higher AADTs reflect higher potential transit capture, adding more vehicles to road segments with heavy congestion would discourage lot use and present challenges for bus operations. Areas with lower congestion levels are better able to handle additional vehicle volumes and bus traffic.

**Scoring:** Using congestion calculations by DVRPC, the volume-to-capacity ratios (V/C) were mapped for the corridor. The ratio for the road segment directly adjacent to each candidate location was used as the congestion value. This value was subtracted from the composite score, as increasing congestion is a negative factor. In the map below, the congestion is mapped in three categories. A V/C ratio above .85 is considered to be Level of Service E or worse.



Source: DVRPC, 2010.

Map of the Volume-to-Capacity Ratio, a Proxy for Congestion



Source: DVRPC, 2010.

Southfield Shopping Center: lowest congestion among candidate sites.

- |                                      |                               |                           |                                     |                                 |
|--------------------------------------|-------------------------------|---------------------------|-------------------------------------|---------------------------------|
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## Pedestrian Access

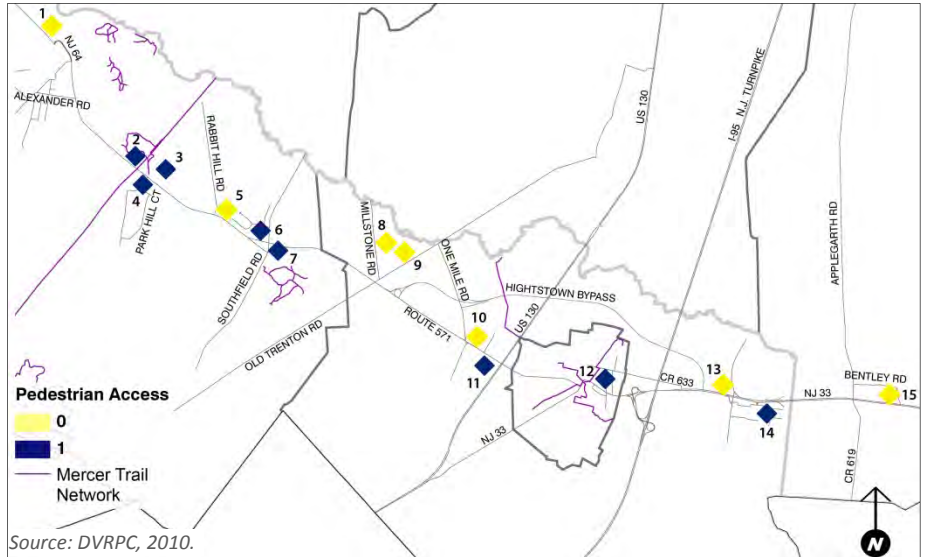
Similar to the rationale for bicycle access, pedestrian access is an important feature for a developed site because it offers riders options for accessing transit services. It also has the potential to attract additional users who do not have a car available to them, and it encourages the use of healthier, greener transportation choices.

**Scoring:** Generally, pedestrian access was rated based on the presence of connections from any direction to the proposed lot by either sidewalk or trail. The pedestrian underpass at Twin Rivers Shopping Center was scored as direct trail access since it functions much in the same way, connecting the site to neighborhoods to the north. The maximum score was one point, indicating whether or not pedestrian facilities exist.



Source: DVRPC, 2010.

Twin Rivers Shopping Center: served by sidewalks and connected to residences to the north by a pedestrian underpass (viewed from the north here).



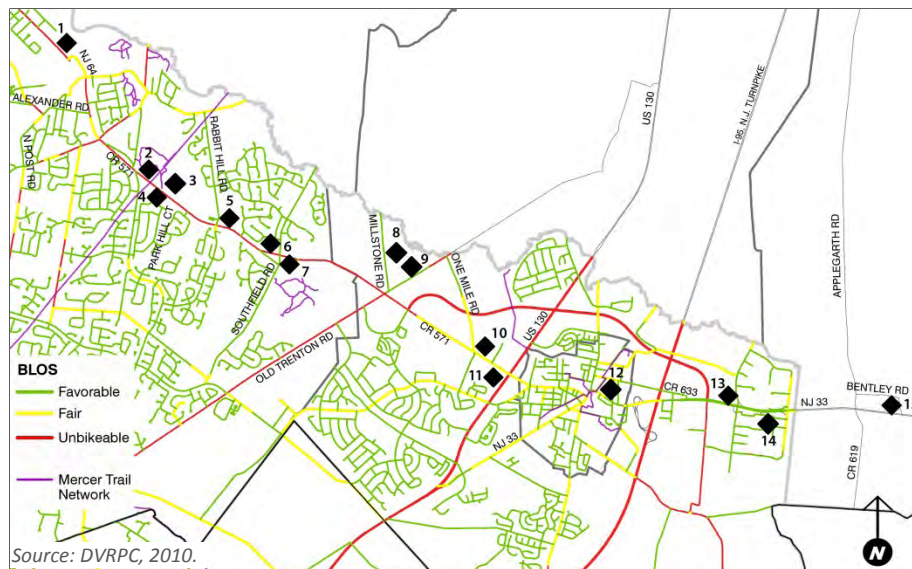
Source: DVRPC, 2010.

Map of Pedestrian Access Scores for Each Lot

## Bicycle Access

Lots should be accessible by bicycle, in addition to automobiles, as these sites will serve as passenger pick-up locations, not just parking lots. The ability to arrive by modes other than automobiles will attract more users and create more choices in transportation.

**Scoring:** Bicycle access has a maximum score of one point, indicating the presence or absence of facilities improving access. Two types of facilities were considered to improve access to the site. The first is direct trail connections to a site. The second element is whether or not the lot is accessible by streets with a Bicycle Level of Service (BLOS) of C or higher. These routes would be the most comfortable for bicyclists and provide an efficient, non-motorized way for residents to access transit.



Source: DVRPC, 2010.

Map of BLOS Scores and Trail Network along the CR 571 Corridor



Source: DVRPC, 2010.

West Windsor Business Park: direct trail access to the lot.

- |                                      |                               |                           |                                     |                                 |
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## Ease of Entry and Exit

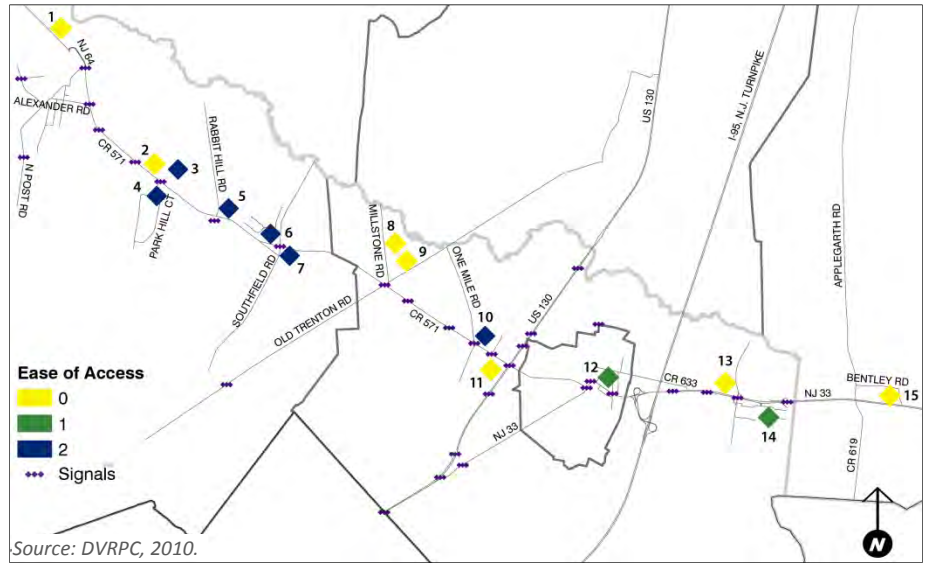
The ability to enter and exit a lot in a safe, orderly way increases the ease of use for both park-and-ride patrons and transit vehicles. Two elements that serve to organize ingress/egress are the presence of traffic signals and left-hand turn lanes. Signals provide additional benefits by making bicycle and pedestrian access safer.

**Scoring:** Possible scores range from zero to two points. A point was given for the existence of a light or a left-hand turn lane at the intersection or other access point to the lot.



Source: DVRPC, 2010.

Village Center: turns aided by a traffic light and turn lanes.



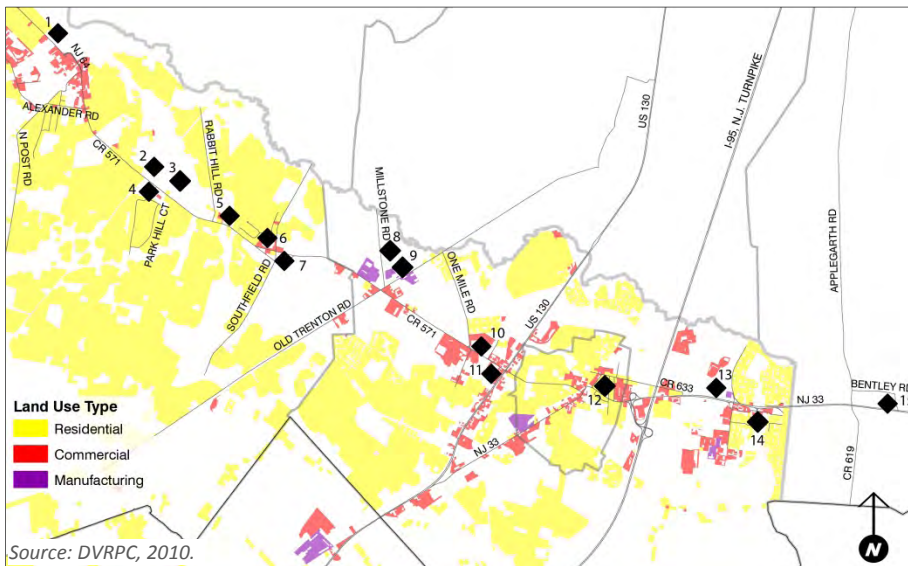
Source: DVRPC, 2010.

Map of Ease of Access Scoring and Traffic Signals in the Vicinity of the Study Area

## Activity Center

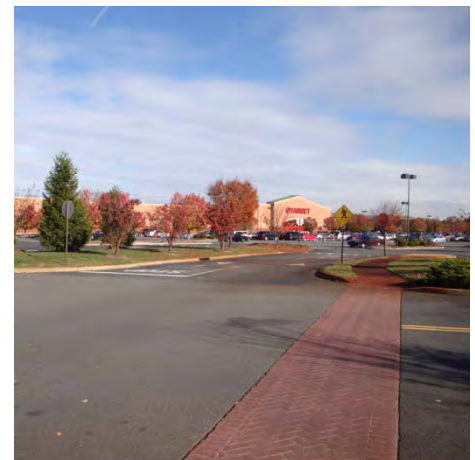
Locating park-and-ride facilities within shopping centers has the potential to reduce auto use, because passengers are able to combine transit trips with other trips. Co-location with activity centers also helps to make transit facilities more visible and attractive.

**Scoring:** Candidate locations were given one point if they were on the site of a shopping center with primarily commercial uses. If not, no points were awarded.



Source: DVRPC, 2010.

Map of Land Use in the Corridor; Commercial Uses Foster Activity Centers



Source: DVRPC, 2010.

East Windsor Village: one example of a park-and-ride that would be co-located with an activity center.

- |                                    |                               |                           |                                     |                                 |
|------------------------------------|-------------------------------|---------------------------|-------------------------------------|---------------------------------|
| 1. Princeton Community Church      | 4. West Windsor Business Park | 7. Village Center         | 10. East Windsor Village            | 13. Former Suburban Bus Garage  |
| 2. Prince of Peace Lutheran Church | 5. Mulligan Property          | 8. Millstone Road         | 11. Windsor Heights Shopping Center | 14. Twin Rivers Shopping Center |
| 3. West Windsor Community Park     | 6. Southfield Shopping Center | 9. Windsor Corporate Park | 12. St. Anthony of Padua Church     | 15. Monroe Lot                  |



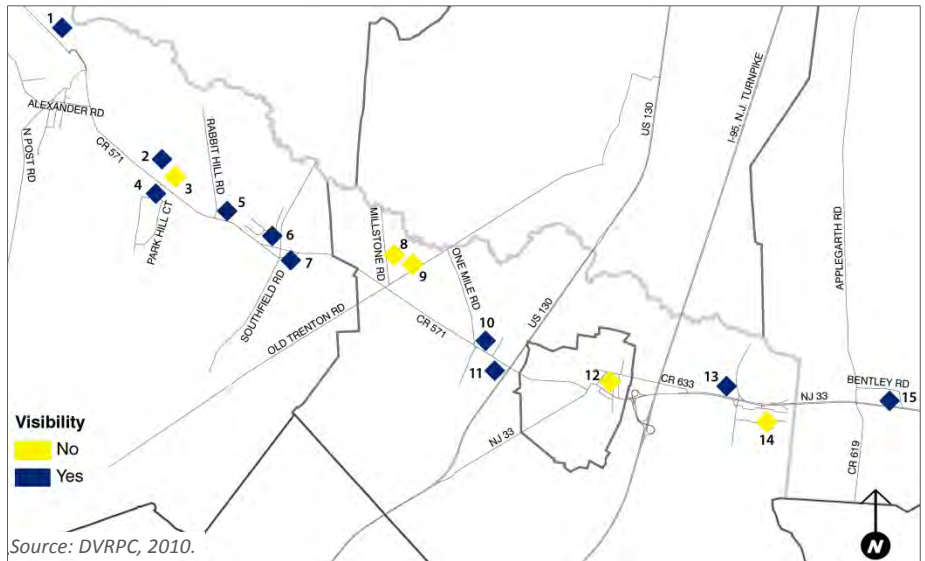
## Visibility

Visibility from CR 571 or NJ 33 is important for wayfinding and marketing of transit services and also contributes to a higher perception of safety for riders and their property.

**Scoring:** A lot is either visible or not. If a candidate location is directly visible from CR 571 or NJ 33—i.e., a passing vehicle could see a bus dwelling there—then it was assigned a score of one point. If not, no points were given.



Source: DVRPC, 2010.  
Princeton Korean Community Church:  
directly visible to passing vehicles.



Source: DVRPC, 2010.

Map of Lot Visibility from the Main Route

## Initial Results from Technical Analysis

The resulting scores from the criteria were summed to produce an initial ranking of the lots. This is a strictly quantitative summary but gives a general sense of which lots may be stronger candidates for further study and consideration.

### Technical Analysis Scores and Ranking

Ranking	Score	Lot Name
1	12.4	Southfield Shopping Center (#6)
2	12.3	West Windsor Community Park (#3)
3	12.1	West Windsor Business Park (#4)
4	11.4	Twin Rivers Shopping Center (#14)
5	11.2	East Windsor Village (#10)
6	11.1	Village Center (#7)
7	10.3	St. Anthony of Padua Church (#12)
8	9.3	Prince of Peace Lutheran Church (#2)
9	9.3	Mulligan Property (#5)
10	9.2	Windsor Heights Shopping Center (#11)
11	6.6	Windsor Corporate Park (#9)
12	6.1	Former Suburban Bus Garage (#13)
13	5.6	Millstone Road (#8)
14	3.9	Princeton Korean Community Church (#1)
15**	N/A**	Monroe Lot (#15)

\*\* The lot in Monroe is outside of the DVRPC region, and, accordingly, data for many of the criteria was unavailable. It is included as a candidate location for informational purposes, though not scored.

1. Princeton Korean Community Church	4. West Windsor Business Park	7. Village Center	10. East Windsor Village	13. Former Suburban Bus Garage
2. Prince of Peace Lutheran Church	5. Mulligan Property	8. Millstone Road	11. Windsor Heights Shopping Center	14. Twin Rivers Shopping Center
3. West Windsor Community Park	6. Southfield Shopping Center	9. Windsor Corporate Park	12. St. Anthony of Padua Church	15. Monroe Lot



## Candidate Location Ratings

This table summarizes the indicator ratings for each candidate location

	Demand			Readiness		Location						
	Existing Transit Demand	AADT (2008)	Transit Score	Status	Space Availability	Crashes	Congestion	Pedestrian Access	Bicycle Access	Ease of Entry and Exit	Activity Center	Visibility
1. Princeton Korean Community Church	6	7,729 (2009)	.60	Yes	32 stalls 20% occupied	3	.75	--	--	--	No	Yes
2. Prince of Peace Lutheran Church	21	22,162 (2008)	.80	Yes	49 stalls 30% occupied	2	.50	Trail Access	Trail Access	--	No	Yes
3. West Windsor Community Park	30	22,162 (2008)	.80	Public	243 stalls 5% occupied	11	.50	Trail Access	Trail Access	Light; Turn Lane	No	No
4. West Windsor Business Park	27	22,162 (2008)	.59	Yes	353 stalls 60% occupied	11	.50	Sidewalk; Trail Access	BLOS A; Trail Access	Light; Turn Lane	No	Yes
5. Mulligan Property	25	22,162 (2008)	.80	No	~56 stalls	12	.50	--	BLOS B	Light; Turn Lane	No	Yes
6. Southfield Shopping Center	27	20,374 (2009)	.80	Yes	498 stalls 35% occupied	22	.41	Sidewalk	BLOS A	Light; Turn Lane	Yes	Yes
7. Village Center	25	20,374 (2009)	.80	Yes	~101 stalls 30% assumed occupancy	20	.45	Sidewalk	BLOS A	Light; Turn Lane	Yes	Yes
8. Millstone Road	7	22,853 (2010)	1.35	Yes	583 stalls Not occupied	85	.73	--	BLOS B	--	No	No
9. Windsor Corporate Park	11	22,853 (2010)	1.35	Yes	1,695 stalls 45% occupied	94	.75	--	BLOS A/B	--	No	No
10. East Windsor Village	34	17,679 (2008)	1.35	Yes	1,389 stalls 20% occupied	45	1.15	Sidewalk	--	Light; Turn Lane	Yes	Yes
11. Windsor Heights Shopping Center	28 Coach USA PNR	17,679 (2008)	1.35	Yes	587 stalls 5% occupied	168	1.15	Sidewalk	--	--	Yes	Yes
12. St. Anthony of Padua Church	17	12,835 (2006)	2.95	Yes	264 stalls 5% occupied	14	.62	Sidewalk; Trail Access	BLOS C; Trail Access	Light	No	No
13. Former Suburban Bus Garage	5	17,322 (2005)	.84	Yes	~475 stalls Not occupied	28	.73	--	BLOS C	--	No	Yes
14. Twin Rivers Shopping Center	5 Coach USA PNR	14,311 (2010)	3.13	Yes	618 stalls 55% occupied	15	.73	BLOS A	Sidewalk; Pedestrian Underpass	Light	Yes	No
15. Monroe Lot	1	N/A	N/A	Yes	246 stalls 30% occupied	N/A	N/A	--	--	--	No	Yes

\* Assuming New Jersey Department of Environmental Protection approval.

Source: DVRPC, 2011.

## Candidate Location Scoring

This table details the numerical scoring for each candidate location under each indicator (higher scores are more favorable)

	Demand			Readiness		Location						Total	
	Existing Transit Demand	AADT	Transit Score	Status	Space Availability	Crashes	Congestion	Pedestrian Access	Bicycle Access	Ease of Entry and Exit	Activity Center		Visibility
1. Princeton Korean Community Church	0	0 (low)	.60	0	0 (25 spaces)	3 (very low)	-.75	0	0	0	0	1	3.9
2. Prince of Peace Lutheran Church	1	2 (high)	.80	0	0 (34 spaces)	3 (very low)	-.50	1	1	0	0	1	9.3
3. West Windsor Community Park	2	2 (high)	.80	*1	1 (230 spaces)	2 (low)	-.50	1	1	2	0	0	12.3
4. West Windsor Business Park	2	2 (high)	.59	0	1 (141 spaces)	2 (low)	-.50	1	1	2	0	1	12.1
5. Mulligan Property	2	2 (high)	.80	-1	0 (56 spaces)	2 (low)	-.50	0	1	2	0	1	9.3
6. Southfield Shopping Center	2	1 (medium)	.80	0	2 (323 spaces)	1 (medium)	-.41	1	1	2	1	1	12.4
7. Village Center	2	1 (medium)	.59	0	0 (70 spaces)	2 (low)	-.45	1	1	2	1	1	11.1
8. Millstone Road	0	2 (high)	1.35	0	2 (583 spaces)	0 (high)	-.73	0	1	0	0	0	5.6
9. Windsor Corporate Park	0	2 (high)	1.35	0	3 (932 spaces)	0 (high)	-.75	0	1	0	0	0	6.6
10. East Windsor Village	2	1 (medium)	1.35	0	3 (1,111 spaces)	1 (medium)	-1.15	0	0	0	1	1	11.2
11. Windsor Heights Shopping Center	3	1 (medium)	1.35	0	2 (410 spaces)	0 (high)	-1.15	1	0	0	1	1	9.2
12. St. Anthony of Padua Church	1	1 (medium)	2.95	0	1 (250 spaces)	2 (low)	-.62	1	1	1	0	0	10.3
13. Former Suburban Bus Garage	0	1 (medium)	.84	0	2 (475 spaces)	1 (medium)	-.73	0	1	0	0	1	6.1
14. Twin Rivers Shopping Center	1	1 (medium)	3.13	0	1 (278 spaces)	2 (low)	-.73	1	1	1	1	0	11.4
15. Monroe Lot	0	N/A	N/A	-1	1 (172 spaces)	N/A	N/A	0	0	0	0	1	N/A

\* Assuming New Jersey Department of Environmental Protection approval.

Source: DVRPC, 2011.

## Stakeholder Review and Prioritization

While the prior analysis resulted in a preliminary ranking of candidate sites, it was not intended to be the final word on sites that are the best candidates for advancement. The results of the initial scoring analysis were shared with corridor stakeholders, including NJ TRANSIT, in April and May 2011 in order to collect additional input on strong candidates and also to identify any sites with fatal flaws that DVRPC's scoring analysis did not reveal.

Among Mercer County stakeholders, DVRPC received feedback on the preliminary analysis and candidate locations from East Windsor Township, West Windsor Township, Mercer County, and NJ TRANSIT.

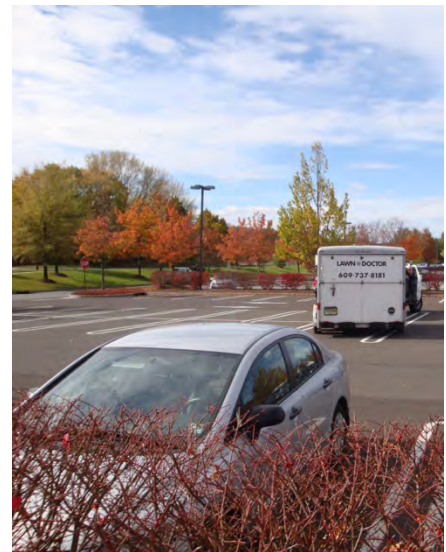
As a result of this discussion, a variety of modifications were made to the preliminary scoring framework, and the candidate location ranking was revised accordingly. As it happens, each of the top six candidate locations in DVRPC's revised scoring summary were also identified as strong candidates by one or more of the corridor stakeholders. In addition, another pair of sites that were not rated favorably in the scoring framework were selected as potentially strong candidates by NJ TRANSIT. Together these sites comprise a short list for further consideration, and discussion on each location follows.

### Analysis Ranking 1: Southfield Shopping Center (Site #6)

#### Rated favorably by West Windsor Township

This location scored highly in the analysis for a variety of reasons, including a high concentration of nearby Princeton Junction park-and-ride origins, multiple options for ingress and egress and stop configuration, and a comparatively minimal level of traffic congestion. In addition, nearby neighborhoods are well connected to the site by both a fairly complete sidewalk network and highly bikeable roadways.

West Windsor Township viewed this location favorably because of the consistent availability of weekday, daytime parking over the shopping center's 15-year life, making it a good location for shared-use parking. The township also confirmed that a designated shared parking arrangement would require a D-1 use variance.



Source: DVRPC, 2010.

### Analysis Ranking 2: West Windsor Community Park (Site #3)

#### Rated favorably by West Windsor Township

This location scored highly in the analysis due to the high concentration of nearby Princeton Junction park-and-ride origins, a relative ease of ingress and egress (via a signalized intersection), relatively low adjacent levels of congestion and crashes, and—importantly—its public ownership. This location also has very good bicycle and pedestrian accessibility, including direct trail access.

West Windsor Township preferred this location because of common daytime parking availability (though additional checks would be required) as well as the potential to construct additional parking on publicly owned land, if necessary. However, the Township cautioned that because the park was constructed using Green Acres funds, there may be restrictions for commuter parking use. A review of Green Acres rules suggests that since the lots in question were constructed prior to 1999, with no Green Acres funding for the lots themselves, a shared-use commuter parking arrangement would require only New Jersey Department of Environmental Protection (NJ DEP) administrative approval. Commuter parking on lots constructed after June 30, 1999, or using Green Acres funding, would constitute diversions under Green Acres, effectively prohibiting it. A rules interpretation from NJ DEP is required on whether a 2007 Green Acres-funded lot expansion at West Windsor Community Park means that commuter parking on any part of the parking area, including the original footprint, would constitute a diversion.



Source: DVRPC, 2010.

### **Analysis Ranking 3: West Windsor Business Park (Site #4)** **Rated favorably by West Windsor Township**

The West Windsor Business Park scored highly in the analysis due to the high concentration of nearby Princeton Junction park-and-ride origins, a relative ease of ingress and egress (via a signalized intersection), high traffic volumes, relatively low levels of congestion and crashes, and excellent bicycle and pedestrian accessibility from nearby residences, including direct trail access.

West Windsor Township viewed this location favorably because of the typical availability of weekday, daytime parking stalls. An additional office building has construction approval, but additional parking would also be constructed. The township also confirmed that a designated shared parking arrangement would require a D-1 use variance.



Source: DVRPC, 2010.

### **Analysis Ranking 4: Twin Rivers Shopping Center (Site #14)** **Rated favorably by NJ TRANSIT**

Twin Rivers is an existing park-and-ride for Coach USA commuter bus service to New York and is also well connected to adjacent neighborhoods by sidewalks and paths, including a bike/pedestrian underpass providing access from across NJ 33. In addition to this excellent accessibility, Twin Rivers also scored highly in the analysis because of the high Transit Score of the surrounding area and the demonstrated existing park-and-ride demand.

NJ TRANSIT favored Twin Rivers because, if the existing facility and parking area were expanded, it could serve as natural terminus for BRT feeder service to Princeton Junction and the US Route 1 corridor.

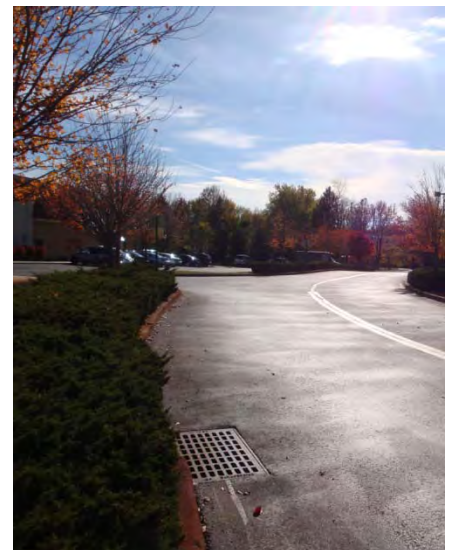


Source: DVRPC, 2010.

### **Analysis Ranking 5: East Windsor Village (Site #10)** **Rated favorably by East Windsor Township and NJ TRANSIT**

East Windsor Village scored favorably in the analysis due to a relatively high nearby concentration of both East Windsor shuttle and Princeton Junction passenger origins, a relatively high Transit Score for nearby development, significant available parking capacity, and relatively low congestion along adjacent portions of CR 571.

This location was also preferred by East Windsor Township because of its strong general desire for more transit accommodation in the vicinity of CR 571 and US 130. NJ TRANSIT rated both the Windsor Heights Shopping Center (on the south side of CR 571) and East Windsor Village (on the north side) favorably as a pair of locations. NJ TRANSIT suggested that because of their respective locations, East Windsor Village would be better suited for East Windsor Shuttle and BRT feeder service (with westbound demand in the AM peak) and the Windsor Heights Shopping Center better suited for continued commuter bus service to New York (eastbound demand in the AM peak). Of the two locations, East Windsor Village is highlighted in this section because of a more favorable score in the analysis.



Source: DVRPC, 2010.

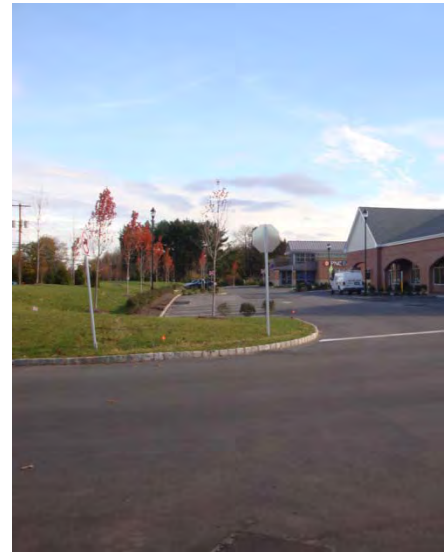


## Analysis Ranking 6: Village Center (Site #7)

Rated favorably by NJ TRANSIT

This location scored favorably in the analysis because of its good bicycle and pedestrian accessibility, relatively high concentration of nearby Princeton Junction origins, and ease of ingress and egress. NJ TRANSIT identified Village Center as a potentially strong location for BRT feeder or shuttle service.

However, West Windsor Township recommended that this location be eliminated from consideration because of its constrained parking supply, which is expected to be more apparent once the shopping center is fully leased. Also, Village Center was granted a waiver to provide fewer than the minimum required number of parking stalls, and future lot expansion is very unlikely because of surrounding wetlands.



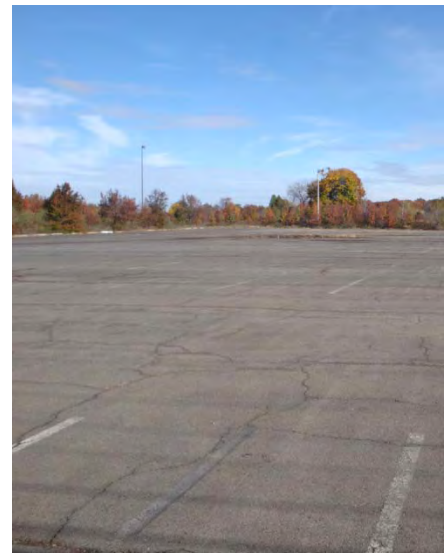
Source: DVRPC, 2010.

## Analysis Ranking 11 and 13: Millstone Road and Windsor Corporate Park (Site #8 & Site #9)

Rated favorably by NJ TRANSIT

As a pair of locations, Millstone Road and Windsor Corporate Park scored near the bottom in the analysis because of relatively low levels of existing demand (a low concentration of nearby Princeton Junction origins), relatively challenging ingress and egress, and relatively high levels of both nearby crashes and congestion.

NJ TRANSIT suggested that these locations would be strong candidates for consideration because of a good location in the corridor, particularly suited for BRT feeder service and East Windsor Shuttle service. Of the two sites, Millstone Road may be a stronger candidate because of its current disuse.



Source: DVRPC, 2010.

## Recommended Candidates

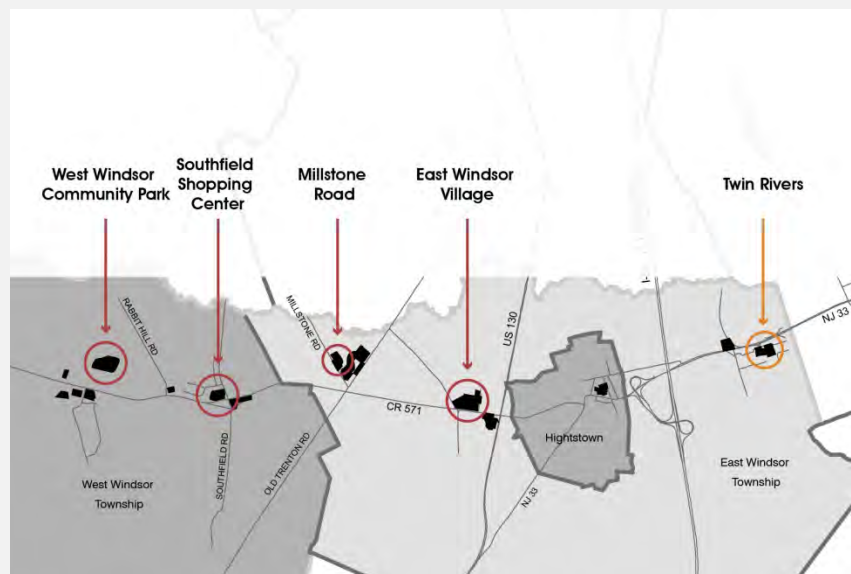
Based on stakeholder review and further analysis, DVRPC recommends these five locations as the best candidates for advancement.

### New facilities:

- West Windsor Community Park
- Southfield Shopping Center
- Millstone Road
- East Windsor Village

### Expanded facility:

- Twin Rivers Shopping Center



Source: DVRPC, 2011.

## Potential Funding Opportunities

There are several ongoing programs through which a park-and-ride facility and/or its associated passenger amenities (shelters, walkways, benches, bike racks) could be funded.

### Federal Programs

#### Congestion Mitigation and Air Quality (CMAQ)

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) bill's CMAQ program provides over \$8.6 billion dollars in funds, over a period of five years (2005—2009), to state DOTs, metropolitan planning organizations, and transit agencies to invest in projects that reduce criteria air pollutants regulated from transportation-related sources. Subsequent extensions of SAFETEA-LU have continued to fund the CMAQ program at this level.

As a project that seeks to shift single-occupant vehicle trips to partial transit trips, the proposed park-and-ride facility could be eligible for CMAQ funding. However, the numbers of deferred Transportation Improvement Program projects that are also eligible often mean that each year's available funding is already spoken for.

When programmed CMAQ funds become available from time to time, DVRPC also manages a competitive regional CMAQ program that draws from these available funds to cover up to 80 percent of the costs of eligible regional projects.

#### Transit Enhancements

Under SAFETEA-LU, as well as prior federal transportation authorization legislation, the Federal Transit Administration (FTA) requires transit agency recipients of formula funding within urbanized areas of at least 200,000 persons to dedicate at least one percent of their total formula funding allotment to Transit Enhancements.

FTA guidance defines Transit Enhancements as "projects that are designed to enhance public transportation service or use and that are physically or functionally related to transit facilities." Eligible projects include improvements to passenger amenities, access, or comfort in using both rail and bus service. These could include station renovations, walkways to accommodate safe access, bus shelters, Americans with Disabilities Act (ADA) accessibility enhancements, and others.

In the case of the proposed park-and-ride facility, Transit Enhancements could be used to pay for bus shelters, passenger waiting areas, walkways, landscaping, signage, or bike racks, but likely not any improvements to the parking area itself, as auto access improvements are typically excluded from Transit Enhancements eligibility.

NJ TRANSIT's Fiscal Year (FY) 2011 Capital Program indicates that the agency plans to spend Transit Enhancement dollars on ADA accommodation improvements to rail stations (in the North Jersey Transportation Planning Authority region) as well as bus shelters and signage statewide. For the DVRPC region, NJ TRANSIT's FY 2011 Program allocated \$115,000 in FY 2011 and allocates \$609,000 for FY 2011 through 2015 under the Statewide Bus Signs and Shelter Maintenance Upgrade Program.

#### MAP-21 Implications

Because guidelines and regulatory details have yet to be established, there is some uncertainty about how these programs will function and be funded under the new federal transportation authorization, Moving Ahead for Progress in the 21st Century (MAP-21). At this time it appears that the CMAQ program will continue relatively unchanged. However, the Transit Enhancements program will be referred to as Associated Transit Improvements, although the same types of projects will be eligible, with the exception of some projects with a beautification or aesthetic emphasis.

### State Programs

#### NJ DOT Park-and-Ride Program

NJ DOT has an ongoing park-and-ride program through which they pursue lease agreements with property owners for shared-use park-and-ride facilities. Typically lease agreements are pursued for the number of stalls that are anticipated to match passenger demand, plus an additional 15 to 20 percent to handle demand overflow. This acts as an incentive for property owners in the short run in the form of additional lease revenue and also protects NJ DOT from having to renegotiate lease agreements too frequently (renegotiations occur if usage proves higher than the number of leased stalls on a regular basis).

Under typical lease agreements, property owners are paid between \$1.00 and \$1.50 per stall, per day, for a 240-day calendar year (to reflect typical workday usage). In exchange for this payment, the property owner agrees to continue maintenance of the parking stalls, including snow removal. NJ TRANSIT typically constructs a bus shelter, which the property owner also agrees to maintain. A statewide total of \$1 million annually has been allocated to this program in recent years.

However, at the time of publication, NJ DOT has stopped accepting new applications and, due to policy changes, the future of this program is unclear.

## Next Steps

This analysis has identified four strong candidates for new park-and-ride facilities, and one strong candidate for additional capacity (to go along with additional service). The next step is for service providers to consider these recommended locations in the context of their operating and planned services, and explore both the interest of property owners and availability of funding for the location or locations they deem most suitable for their operations.

In addition to securing funding for any improvements and/or operations, municipal action in support of these projects may be required, such as ensuring that park-and-ride facilities in general, and specifically park-and-ride lots that are created from a shared-use arrangement, are permitted uses in zoning and other municipal codes. In addition, as noted elsewhere in this report, it may be necessary for municipalities to grant parking supply variances or alternatively revisit parking requirements in support of park-and-ride uses.

DVRPC will continue to work with Mercer County and corridor stakeholders through the CJTF to advance transit mobility enhancements in the CR 571/NJ 33 corridor.



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Key Words: Transportation, Transit, Park-and-Ride, NJ TRANSIT, Bus

Abstract: The purpose of this project is to evaluate feasible locations for park-and-ride facilities along CR 571 in Mercer County. The report summarizes existing park-and-ride facilities in the corridor, details potential new locations and their attributes, and assigns a preliminary rating for each location based on selected criteria. The analysis identifies four strong candidates for new park-and-ride facilities, and one strong candidate for additional capacity (to go along with additional service).

Staff Contact:

Cassidy Boulan  
Transportation Planner  
215.238.2832  
cboulan@dvrpc.org

Delaware Valley Regional Planning Commission  
190 N Independence Mall West, 8th Floor  
Philadelphia, PA 19106-1520  
Phone: 215.592.1800  
Fax: 215.592.9125  
www.dvrpc.org





**190 N. Independence Mall West**  
**8th Floor**  
**Philadelphia, PA 19106**  
**Phone: 215.592.1800**  
**Fax: 215.592.9125**  
**Web: [www.dvrpc.org](http://www.dvrpc.org)**