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September 8, 2011

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To: Mercer County Executive Brian Hughes

Cc: West Windsor Township Mayor Shing-Fu Hsueh; West Windsor West Windsor Township Council Members; Mercer County Transportation and Infrastructure Director Aaron Watson, Mercer County Engineer Greg Sandusky; Mercer County Traffic Engineer George Fallat; Mercer County Planning Director Donna Lewis, Mercer County Principal Planner Matt Lawson, West Windsor Township Business Administrator Robert Hary; West Windsor Township Community Development Director Pat Ward; West Windsor Township Assistant Manager of Engineering Brian Aronson; West Windsor Township Engineer Francis Guzick; West Windsor Township Planning Board Members; Mercer County Board of Freeholders; Delaware Valley Regional Planning Commission Regional Citizens Committee Action Task Force Members; U.S. Representative Rush Holt; New Jersey State Senator Linda Greenstein; New Jersey State Senator Shirley Turner; New Jersey State Assemblyman Dan Benson; New Jersey State Assemblyman Wayne DeAngelo; New Jersey State Assemblyman Reed Gusciora; New Jersey State Assemblywoman Bonnie Watson Coleman

Re: Main Street Princeton Junction / Rt. 571 Design Recommendations

Dear Mr. Hughes,

Regarding the proposed design for the TIP project Princeton-Hightstown Road Improvements, CR 571 in downtown Princeton Junction, the WWBPA appreciates the county's plans to improve the pedestrian crossing at CR 571 and Sherbrooke Drive, as well as the county's flexibility regarding the speed limit. We share the county's goals regarding regional mobility, capacity, safety, economic development and support for multi-modal transit, including Bus Rapid Transit (BRT) in addition to walking and bicycling, and yet are deeply disappointed to learn that the proposed design will not be changed to achieve these goals.

Per the WWBPA's 2010 recommendations<sup>1</sup> following the conceptual design review, the design is inappropriate for a bicycle and pedestrian improvement project, and should either be reclassified or remedied. It is simply not a Main Street project, but rather a capacity project that compromises safety to meet forecasted regional mobility needs that haven't materialized.

The safety needs are clear – in the project area, 2 pedestrian fatalities (2004 and 2005), but no motorist fatalities, have occurred since 2001.<sup>2</sup> In 2006, however, a 17 year old motorist died immediately west of the project area, when she lost control of her vehicle on the curve west of the bridge over the train tracks. It happened mid-afternoon, and no alcohol or drugs were involved - she may have maintained control if she were going more slowly than the 40mph posted speed limit that this design preserves.

It is unconscionable that the proposed roadway design exacerbates rather than remedies these safety problems, through a proposed two-way left turn lane (TWLTL) that enables 30% more traffic to move at the existing 45mph design speed, with no provision for pedestrian crossing refuges – these are fundamental design flaws that none of us wants to see prove fatal.

In addition to safety, we'll examine the demand for capacity, and show that CR 571's 10-mile regional role is limited to West Windsor and our immediate neighbors, since other routes serve the broader region more successfully. We'll examine the capacity growth forecasts used to justify the design against the intervening years' actual traffic counts (they've gone down, not up). We'll analyze the corridor's slowing population growth (from 19.7% 1990-2000 to 7.5% 2000-2010), and review how our aging population affects roadway design. We'll look forward, using current trends and population growth forecasts, to suggest an alternative vision for livability and economic (re)development in Mercer County, supporting compact development instead of sprawl.

We'll see how federal classifications encourage traffic engineers to ignore land use in roadway design, and how context sensitive design provides flexible solutions. We'll look at studies regarding speed, congestion, support for transit and safety, and show that some WWBPA recommendations provide wins for everyone, not just for bicyclists and pedestrians.

### Limited Wider Regional Role

Clearly CR 571 serves our immediate neighbors in its 10 miles from Princeton to Hightstown, and so meets the narrowest definition of regional, but is there a wider role? If so, Princetonians would use 571 and Exit 8 of the turnpike to reach destinations south (they'd use Exits 8A or 9 to go north), say to Allentown or Mount Holly, towns near a turnpike exit, the most likely places to show 571's wider value. Google Maps does not suggest this route to either destination, however - US 1, I-295 and I-195 are better alternatives. See the Appendix for a route comparison.

Please consider how wider and faster roads promote sprawl, with its undesirable and unsustainable effects.<sup>3</sup> The county's current initiatives, such as the Bicycle Plan and the 571 Park and Ride study, create more efficient alternatives to

roadway widening, and which better capture the economic and quality-of-life benefits of living and working in Mercer County.

Still, CR 571 should meet realistic future capacity needs - let's review the known actual numbers against the forecasts and reconsider the reasonableness of the forecasts.

#### Negative Traffic Growth 2007 - 2011

Urbitrans's 2005 Route 571 Corridor Planning Study assumed 3% per year traffic growth for 10 years, or a "more likely" 1% per year growth for 20 years.

Actual NJ DOT traffic counts for this part of CR 571, however, were 19,268 in 2006 and 18,129 in 2009, a decrease of 0.6%.<sup>4</sup> Nationally, vehicle miles driven have decreased year over year since 2007.<sup>5</sup>

Always-increasing traffic may prove to be like always-rising stock or housing prices, just another once-common assumption.

#### Slowing Population Growth

Population growth for the 571 corridor communities is slowing, and is expected to continue to slow - from 19.7% from 1990 to 2000 to 7.5% from 2000 to 2010, according to the US Census. The Delaware Valley Regional Planning Commission's population forecast for 2035<sup>6</sup> calls for continued slowing growth, to 2.8% 2010-2020 and 2% 2020-2030.

The forecasted 1% per year traffic growth will not be driven by forecasted 2% per decade population growth.

#### Aging Population

Our aging population<sup>7</sup> provides additional considerations for roadway designers. The senior-advocacy group AARP specifically warns that two-way center left turn lanes are unsafe, especially for senior drivers:

"Continuous center-turn lanes (colloquially referred to as "suicide lanes") increase the chances for vehicular conflict among all drivers because turning movements become less predictable along the length of the roadway. While this issue affects drivers of all ages, older drivers are particularly challenged if they have lower visual acuity and increased reaction times. Confusion over their use can cause older drivers to stop in the through lane, leading to rear-end collisions. Roadway designers should limit vehicular turning movements to defined locations, using measures such as raised grassy medians to control these movements and increase roadway predictability."<sup>8</sup>

West Windsor is home to several active adult (ages 55+) developments, and this section of CR 571 is home to an 81-unit senior housing facility, so designing for

an aging population is particularly important for this project. In addition, the Rite Aid pharmacy recently moved from the ex-Acme strip mall down and across 571, which will increase seniors' pedestrian activity along and across the roadway.

Significantly, the 2 pedestrian fatalities along this roadway were aged 79 (2005) and 72 (2004).

### Looking Forward

People may not return to driving more, if only due to continuing high gasoline prices, which are not forecast to drop long term, since they'll be driven more by developing countries' demand than by domestic demand.<sup>9</sup>

Will American development continue to sprawl? There are indications that the trend is turning. Lani Rosales, a noted real estate agent blogger, reports in her article *Why Pedestrian Safety Rankings Matter to Real Estate Agents*:<sup>10</sup>

“In many cities in America, suburbs are beginning to feel a slight decline in population while metropolitan areas are growing as people are ditching their cars in favor of their feet or their bicycles.”

This economic downturn might be the inflection point for the sprawl-based economic development of the past century, especially if it persists as long as Japan's 10-year post-bubble stagnation of the 1990s.

In any case, the recommended medians with pedestrian refuges and left turn cutouts, or even island refuges, support similar capacity increases as a TWLTL – either allows through traffic to avoid having to slow for left-turning traffic. The refuges, even without medians, provide safety benefits for pedestrians because they allow crossing only 1 direction of traffic at a time.<sup>11</sup>

### Economic Development

A pedestrian friendly Main Street will improve development by attracting residents and raising values. A 2009 study of over 90,000 home sales in 15 metropolitan regions nationwide concluded:

“the walkability of cities translates directly into increases in home values. Homes located in more walkable neighborhoods—those with a mix of common daily shopping and social destinations within a short distance—command a price premium over otherwise similar homes in less walkable areas. Houses with the above-average levels of walkability command a premium of about \$4,000 to \$34,000 over houses with just average levels of walkability in the typical metropolitan areas studied.” -*Walking the Walk: How Walkability Raises Home Values in U.S. Cities, 2009, CEOs for Cities*

Real estate agents are taking notice – Lani Rosales notes:

“There is a growing public conscience pertaining to environmentalism and health and walkability is becoming a real factor in home selection for a bigger and bigger population.”<sup>12</sup>

This opportunity should be shared by all Mercer County residents – the Project for Public Spaces emphasizes that great places need 10 different activities:

“At the core of the Power of 10 is the idea that any great place itself needs to offer at least 10 things to do or 10 reasons to be there. These could include a place to sit, playgrounds to enjoy, art to touch, music to hear, food to eat, history to experience, and people to meet. Ideally, some of these activities are unique to that particular spot and are interesting enough to keep people coming back.”<sup>13</sup>

Creating compact livable communities should be the strategy to attract businesses and residents. Do we have 10 great places in Mercer County? Roadway design alone cannot create a great place, but we need your help to add West Windsor’s Main Street to Mercer County’s list of great places.

### Context Sensitive Design

Balancing design tradeoffs depends on the road’s role in the community and region. To guide these decisions, the federal government requires roadways to be classified by function.

NJ DOT classifies US 1 as a principal arterial, but also Nassau Street in downtown Princeton, to illustrate the broad range of roads that share CR 571’s classification. Why? Because the roadway’s surrounding land use (e.g. residential or commercial) is not even considered in the classification scheme, and even land access (e.g. the number of driveways) calls for a fine judgment, when determining the difference between a principal and minor arterial:<sup>14</sup>

“The land access function of principal arterials is entirely subordinate to their primary function of carrying traffic not destined to land adjacent to the facility. Minor arterial streets, on the other hand, have a ***slightly more important land access function***, though even for this class of facilities this is a secondary consideration.” - *Federal Highway Administrations’ Classification Guidelines (italics added)*

It’s no wonder community context like land use isn’t appropriately weighed by engineers – it’s not in the federal guidelines. Classifying US 1 and Nassau Street the same shows a determination to fit as much as possible into the highest order classification.

CR 571 is also classified as a principal arterial by the state, but West Windsor Township’s Master Plan labels CR 571 in this section a Secondary Arterial.

Context Sensitive Design has been promoted within the profession, resulting in guidebooks like the Institute of Transportation Engineers’ Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

The WWBPA is a private non-profit 501(c)(3) organization whose mission is to build a bicycle and pedestrian friendly community in West Windsor Township and neighboring communities.

(2006)<sup>15</sup> and the NJ DOT Smart Transportation Guidebook (2008),<sup>16</sup> which describes classifications that include the roadway's context, naming Nassau Street a Community Arterial and US 1 a Regional Arterial.<sup>17</sup>

The WWBPA used the Community Arterial classification to guide recommended changes to the 571 design – i.e., these recommendations are not merely the opinions of citizen advocates, they're based on state guidelines developed by transportation professionals.

## Design Speed

The design speed of 45mph for a posted speed of 40mph, as currently exists, is simply not appropriate for a safe, bicycle and pedestrian friendly Main Street.<sup>18</sup> A simple survey of other Mercer County municipalities shows that Hightstown, Princeton, Hopewell, Pennington and Lawrenceville all have Main Streets with speed limits of 25 – 30mph. Why shouldn't the county design West Windsor's new Main Street for a similar speed?

Consider the theoretical difference in travel times over the project's 0.6 mile stretch of road with no other traffic and no signals. Let's agree people drive the speed they are comfortable with, regardless of the posted speed, and so go the current design speed of 45mph and get through town in 48 seconds. If the roadway is redesigned to 30mph, they'll comfortably cruise through town in 72 seconds. Most people would gladly trade those 24 theoretical extra seconds for a Main Street. In practice, during peak hours travel speeds may already be 30mph or less, so there is little real difference to most people.

Capacity is not greatly reduced by lowering the design speed, because there is less space between cars at lower speeds - the roadway is used more efficiently.

## Congestion

Congestion is the result of not being able to build enough capacity to handle rush hour peak flows. It is a false promise, however, to suggest that by expanding roadways and intersections that congestion can be eliminated in densely populated areas like ours. Traffic is like water, and finds its own level in relation to other routes, so expanded roadways quickly become just as congested, as drivers choose them over alternatives (the principle of Triple Convergence).<sup>19</sup>

Downs concludes that congestion is the best roadway resource allocation method available today, since other choices are financially and/or politically constrained:

“In effect, congestion is the solution to the real problem, which is, how can we ration our limited road space during peak hours when far more people want to travel on that space than it can handle simultaneously?

Congestion may seem to be - and is - undesirable when compared to the mythical alternative of delay free, high-speed movements at all times. But

that alternative can never be achieved in most large metropolitan areas.” - Anthony Downs, *Still Stuck in Traffic, Coping with Peak-Hour traffic Congestion, Brookings Institution 2004*

## Transit and Bus Rapid Transit (BRT)

The WWBPA considered recommending narrower lane widths, since they have been shown to be as safe as wider lanes and also calm traffic, but support current lane widths for transit and BRT, per the Smart Transportation Guidebook.<sup>20</sup> According to the Bus Rapid Transit Practitioner’s Guide,<sup>21</sup> target end-to-end speeds for BRT are only 20mph for an arterial median busway separated from traffic, and 10-12mph in mixed traffic,<sup>22</sup> so implementing WWBPA recommendations will pose no more problems than in other towns’ Main Streets.

## Safety

We appreciate Mercer County’s efforts to address pedestrian safety in the face of increasing fatalities,<sup>23</sup> such as by implementing countdown signals at intersections.<sup>24</sup> More must be done - New Jersey still has 1.89 pedestrian fatalities per 100K population, compared to the national average of 1.26.

While there are multiple approaches to safety, it’s safe to say that the traffic calming or Complete Streets approach, which uses diverse elements such as tree canopy, flags, banners, etc. has superseded traditional roadway design for Main Street areas. Even more innovative approaches such as shared space will soon be implemented in West Windsor’s transit village.

“The wider-straighter-more open approach to design will not be safer if it leads to higher speeds and, consequently, more frequent and severe crashes.” -*Flexible Design of New Jersey’s Main Streets, Reid Ewing and Michael King, Voorhees Transportation Policy Institute*

Several studies show that two-way left turn lanes (TWLTLs) are not safe, especially if the posted speed is substantially lower than the design speed:

“AADT, driveway density, and number of lanes had a positive sign. These findings suggest that an increase in any of these three variables increases the likelihood of crash occurrence on TWLTL sections. The sign for the parameter for posted speed was negative, which may be explained by the fact that motorists tend to drive speeds that feel comfortable given prevailing conditions. Thus, lower posted speeds may promote a speed differential that could be closely associated with crashes.” -*John Lu, et al, Safety Issues Related To Two-Way Left-Turn Lanes (2004)*

Another study predicts the new CR 571 with TWLTL will be no safer than today:

“When there is no parking allowed on either street, the difference between the undivided and TWLTL treatments is generally small and is negligible for average daily traffic demands of less than 25,000 vpd. In general, the raised-curb median treatment appears to be associated with fewer accidents than the undivided cross section and TWLTL, especially for

average daily traffic demands exceeding 20,000 vpd.” -*Bonneson and McCoy, NCHRP Report 395 “Capacity and Operational Effects of Mid-Block Left Turn Lanes”*

Finally, consider the experience of Portland, Oregon, a national leader in implementing bicycle and pedestrian infrastructure:

“Portland has had 6 of the past 12 years with zero bicycle fatalities. 2010 and 2008 were two of those years with zero bicycle fatalities. However, that’s only one part of a more important story.

Our experience has been similar to other multi-modal cities. As cities work to make walking and bicycle riding more safe, it remains true that bicycle and pedestrian safety significantly improves. However, the greatest safety benefits are realized by people driving cars and trucks.

In Portland, the numbers speak loudly. Over the past 25 years, the City has seen a long-term, downward trend in total traffic fatalities that is being reduced approximately 6 times faster than the rate for the US. In 1986, there were 79 traffic fatalities, with 61 motor vehicle deaths. In 1996, there were 59 total traffic fatalities with 41 motor vehicle fatalities. In 2010, we had 26 total traffic fatalities with 11 motor vehicle fatalities.” - *Greg Raisman, Portland Bureau of Transportation, via email*

That’s a decrease of 50 motorist and 3 nonmotorist fatalities in 2010 from in 1986 - everyone is safer by designing for bicyclists and pedestrians.

## Conclusion

The current design is inappropriate since it is unsafe, and will prevent us from realizing our Redevelopment Plan’s goal to “create a “Main Street” ... that would transform the existing strip commercial form of development along Route 571 ... to achieve a desirable mix of pedestrian-friendly, village scale development.”

CR 571’s role in regional mobility is limited to West Windsor and our immediate neighbors, since other routes serve the broader region more successfully. Predicted traffic growth has not materialized – actual counts are down, and may not rebound in the future. Slowing population growth will not drive predicted traffic growth. An aging driving population and a senior housing facility on this stretch of roadway contraindicate a TWLTL without pedestrian crossing refuges.

Mercer County should provide livable communities to attract residents and businesses for continued economic development. People want to live in walkable communities, and are willing to pay more for them.

Federal guidelines lead traffic engineers to ignore land use in roadway design, but the context sensitive guidelines developed by NJDOT and used by the WWBPA provide flexible solutions. Congestion cannot be solved by this design’s wider-straighter-faster approach. The recommended reduction in design speed

from 45mph to 30mph will theoretically cost motorists 24 seconds getting through town, but in practice have little negative effect.

The current design's combination of same design speed, additional center turn lane and roadway widening, but no pedestrian refuges, will make it harder to cross the street. This affects our children, who walk across 571 to the high school, as well as our senior residents, who cross 571 to the pharmacy.

The center turn lane design is specifically identified as unsafe for our aging population, unsafe compared to center medians, and no safer than the current roadway. The design speed is unsafe for pedestrians, and the proposal to reduce the speed limit, but not the design speed, has been found to increase crashes.

The roadway's past two actual fatalities, elderly pedestrians, must be addressed to make the road safer - lowering the design speed will prevent pedestrian fatalities, as well as motorist fatalities like the teenage driver who lost control of her car near the project area.

The WWBPA recommendations provide wins for everyone, not just for bicyclists and pedestrians. The recommended medians with pedestrian refuges and left turn cutouts, or even island refuges, support the same increase in capacity as the center left turn lane, and the lane width supports transit and Bus Rapid Transit. Lowering the design speed and implementing other traffic calming features will provide increased safety for motorists, bicyclists and pedestrians - Portland's experience indicates motorists will benefit most.

Please reconsider the county's position, and support our recommendations for a truly safe bicycle and pedestrian friendly Main Street. We will all benefit from a contemporary design that meets today's goals.

Sincerely,

Jerry Foster  
President  
West Windsor Bicycle and Pedestrian Alliance

Appendix: Using Google Maps to Compare Routes from Princeton to Allentown and Mount Holly

Route	Distance (miles)	Time (minutes)	Cost / Trip
<b>Princeton to Allentown</b>			
<i>Google suggested:</i>			
Via Rt 1 S, I-295 S and I-195 E	23.7	29	\$13.15
Via US-206 S, I-295 S and I-195 E	25.6	32	\$14.21
Via US-1 S, I-295 S and SR 33 E	18.1	32	\$10.05
<i>Via 571</i>			
Via CR 571, SR 133 & NJ Turnpike S, exit 8 to exit 7A (\$0.60 toll)	23.2	40	\$13.48
<b>Princeton to Mt Holly</b>			
<i>Google suggested:</i>			
Via Rt 1 S, I-295 S and CR 541 S	31.2	42	\$17.32
Via Rt 1 S, I-295 S, US-206 S & CR 537 W	30.4	41	\$16.87
Via Rt 1 S, NJ 129 S, US-206 S & CR 537 W	31.6	48	\$17.54
<i>Via 571</i>			
Via CR 571, SR 133 and NJ Turnpike S, exit 8 to exit 5 (\$1.10 toll), CR 541 S	39.4	60	\$22.97

Tolls (from <http://www.state.nj.us/turnpike/toll-cars.html> )  
 Car paying cash or peak EZ Pass from Hightstown Exit 8 to I-195 Exit 7A - \$.60  
 Mt Holly Exit 5 - \$1.10

Cost/Trip calculation uses the IRS Mileage Rate July 1, 2011 - \$0.555/mile  
<http://www.irs.gov/newsroom/article/0,,id=240903,00.html>

<sup>1</sup> <http://wwbpa.org/wp-content/uploads/2010/01/WWBPA-Rt-571-Recommendations-Final.pdf>

<sup>2</sup> <http://www.saferoadmaps.org/maps/index.htm#fragment-4>

<sup>3</sup> Race to the Middle: The Homogenization of Population Density and What It's Costing New Jersey, New Jersey Future, August 2004

<http://www.njfuture.org/wp-content/uploads/2011/06/Race-to-Middle-08-04.pdf>

<sup>4</sup> NJ DOT Rt 571 traffic counts at: [http://www.state.nj.us/transportation/refdata/roadway/traffic\\_counts/](http://www.state.nj.us/transportation/refdata/roadway/traffic_counts/)  
10/30/2006 – 19,268 AADT  
7/6/2009 – 18,129 AADT

Also note the 12/15/2009 Rt 571 Public Design Review presentation reports about 17,300 AADT, at:

[http://www.westwindsornj.org/CR571\\_ppt.pdf](http://www.westwindsornj.org/CR571_ppt.pdf)

<sup>5</sup> Miles Driven Nationally Down since 2007, <http://www.businessinsider.com/vehicle-miles-driven-and-the-ongoing-economic-contraction-2011-7> July 25, 2011, which reports on Department of Transportation's Federal Highway Commission Traffic Volume Trends, at: <http://www.fhwa.dot.gov/ohim/tvtw/11mayvt/11mayvt.pdf>

<sup>6</sup> <http://www.dvrpc.org/asp/mcddataNavigator/default.aspx>

<sup>7</sup> AARP Policy Institute, Planning Complete Streets for an Aging America, May 2009, page 4:

<http://assets.aarp.org/rgcenter/ppi/liv-com/2009-02-streets.pdf>

<sup>8</sup> *ibid*, p. 44

<sup>9</sup> Long Term High Gasoline Prices Forecast - <http://www.autoobserver.com/2011/04/longterm-pain-at-the-pump-forecast.html> which reports on the US Department of Energy's "Annual Energy Outlook 2011, with Projections to 2035," April 2011 <http://www.eia.gov/forecasts/aeo/pdf/0383%282011%29.pdf>

<sup>10</sup> <http://agentgenius.com/editorials/why-pedestrian-safety-rankings-matter-to-real-estate-agents/>

<sup>11</sup> "Providing raised medians or pedestrian refuge areas at pedestrian crossings at marked crosswalks has demonstrated a 46% reduction in pedestrian crashes. Installing such raised channelization on approaches to multi-lane intersections has been shown to be particularly effective. At unmarked crosswalk locations, medians have demonstrated a 39% reduction in pedestrian crashes. Medians are especially important in areas where pedestrians access a transit stop or other clear origin/destinations across from each other. Midblock locations account for over 70% of pedestrian fatalities. Also it is where vehicle travel speed are higher which contributes to the injury and fatality rate at this location. Over 80% of pedestrians die when hit by vehicles traveling at 40 mph or faster while less than 20% die when hit at 20 mph."

US DOT Federal Highway Administration [http://safety.fhwa.dot.gov/policy/memo071008/#ped\\_refuge](http://safety.fhwa.dot.gov/policy/memo071008/#ped_refuge)

<sup>12</sup> <http://agentgenius.com/editorials/why-pedestrian-safety-rankings-matter-to-real-estate-agents/>

<sup>13</sup> <http://www.pps.org/articles/the-power-of-10/>

<sup>14</sup> Federal Highway Administration's Functional Classification Guidelines, [http://www.fhwa.dot.gov/planning/fcsec2\\_1.htm](http://www.fhwa.dot.gov/planning/fcsec2_1.htm)

<sup>15</sup> <http://www.ite.org/bookstore/RP036.pdf>

<sup>16</sup> <http://www.state.nj.us/transportation/community/mobility/pdf/smarttransportationguidebook2008.pdf>

<sup>17</sup> NJ DOT Smart Transportation Guidebook, p. 28

<sup>18</sup> NJ DOT Pedestrian Compatible Planning and Design Guidelines, 1999, p. 28

<sup>19</sup> <http://www.uctc.net/access/25/Access%2025%20-%2004%20-%20Traffic%20Congestion%20is%20Here%20to%20Stay.pdf>

<sup>20</sup> NJ DOT Smart Transportation Guidebook, 2008, p. 45

<sup>21</sup> [http://www.trb.org/Main/Blurbs/Bus\\_Rapid\\_Transit\\_Practitioners\\_Guide\\_158960.aspx](http://www.trb.org/Main/Blurbs/Bus_Rapid_Transit_Practitioners_Guide_158960.aspx)

<sup>22</sup> "Typical urban transit buses operate at speeds of about 10 to 12 miles per hour. Speeds up to 20 miles per hour can be anticipated with arterial median busways. Speeds of 25 to 40 miles per hour can be anticipated with grade-separated busways." - Federal Transit Administration, TCRP Report 118, Bus Rapid Transit Practitioner's Guide, p. 4-13

<sup>23</sup> Mercer County pedestrian deaths increase with 15 fatal crashes in 3 years, The Times of Trenton

Published: Friday, February 11, 2011, 7:00 AM Updated: Friday, February 11, 2011, 8:17 AM

[http://www.nj.com/mercercounty/index.ssf/2011/02/mercercounty\\_pedestrian\\_death.html](http://www.nj.com/mercercounty/index.ssf/2011/02/mercercounty_pedestrian_death.html)

<sup>24</sup> <http://wwbpa.org/2010/06/571wallacecranburyintersection/>