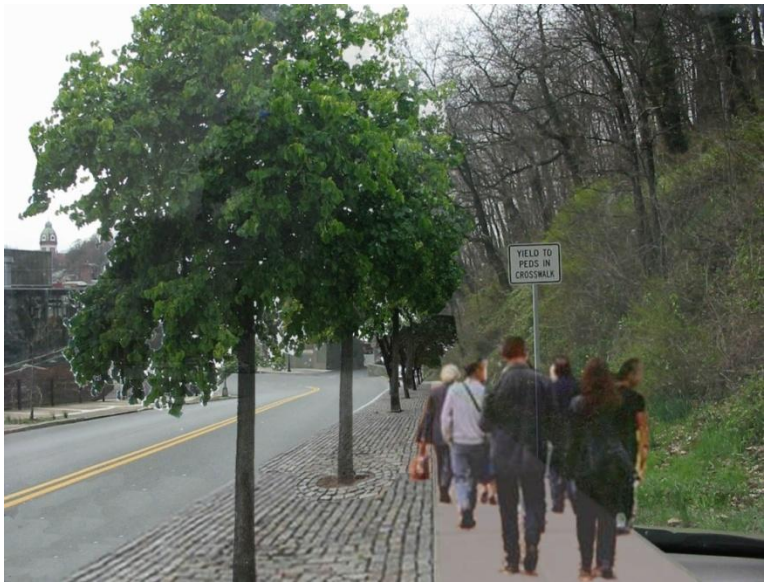
easton eac

environmental advisory council

Enhancing Easton's Status as a Walkable Community:



An Evaluation of the Third Street Corridor

A Report of the City of Easton Environmental Advisory Council – Transportation Affinity Circle - July 2009

ENHANCING EASTON'S STATUS AS A WALKABLE COMMUNITY:

An Evaluation of the Third Street Corridor

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Transportation Affinity Circle

July 2009

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EXECUTIVE SUMMARY

The Easton Environmental Advisory Council's Transportation Affinity Circle evaluated the "walkability" and "pedestrian-friendly" characteristics of the Third Street corridor to identify and recommend potential improvements. In general, the physical fabric of the city – its regular street/block structure, mix of uses and historic buildings within the corridor -- creates a "pedestrian-friendly", "walkable" environment. However, there is room for improvement along the corridor in creating safer and more visible pedestrian street crossings, modernizing curb ramps to comply with current standards under the Americans with Disabilities Act ("ADA"), and providing aesthetic and functional improvements with public art installations and amenities such as additional benches, bicycle racks, and other street furniture. In particular, the EAC recommends improvements of crosswalks and curb ramps throughout the corridor with the construction of enhanced pedestrian crosswalks with "bump-outs" and other traffic calming measures, better protection of pedestrian safety in certain high speed or high traffic areas with bollards or other barriers to separate pedestrians from the flow of traffic, replacement of diagonal curb ramps with perpendicular curb ramps, installation of detectible warnings at the new ramps in accordance with ADA requirements, and installation of mid-block pedestrian crosswalks along blocks of 300 feet or greater in length. Programmatically, we recommend a program of education of residents and increased implementation and enforcement of applicable legal requirements to protect pedestrians and to improve the pedestrian experience.

In general, the goal of these recommended physical and functional changes, along with the programmatic changes, are intended to alter the fundamental "balance of power" between motor vehicles and pedestrians. This area of town should not be considered to be more protective and accommodating of motor vehicle traffic than of pedestrians.

Two segments within the corridor require particular attention to, and substantial improvement of, "walkability" characteristics: (1) the segment along College Avenue to the intersection of North Third Street and Bushkill Street (just beyond the Route 22 overpass); and (2) the intersection of South Third Street and Larry Holmes Drive.

SUMMARY OF RECOMMENDATIONS

General Recommendations

We recommend that the City undertake a visual survey of the pedestrian crosswalks in the downtown district to determine where repainting or other maintenance is required. At a minimum, we recommend that the pedestrian crosswalks along Third Street (and along intersecting cross-streets) be examined and repainted where required. At the time of such repainting, we recommend that additional markings be used in addition to two simple white lines to enhance the visibility of these crosswalks; so-called "zebra" or "ladder" striping or similarly high visibility markings should be used whenever feasible.

We recommend that consideration be given to replacement of the simple pavement markings with installation of the type of improved crosswalk within the 200 block of North Third Street (depicted in Figure 4), whenever feasible. This is especially applicable due to its characteristics as a heavily-traveled thoroughfare and fairly dense, mixed-use streetscape for which the City wishes to encourage pedestrian traffic for business and tourism. This is true particularly because of the retail businesses within this Street Corridor Enhancement Overlay Zoning District and its location (subject to final alignment decisions) along the Bushkill Creek Heritage Trail. While we recognize that City budgetary constraints may cause other projects to command a higher priority, this recommendations should be implemented where roadway improvements are otherwise proposed for crosswalk intersections.[1]

We also recommend that the City consider altering existing diagonal curb ramps and replacing them with perpendicular curb ramps at selected locations such as the intersection of South Third Street and Pine Street to mitigate the risk to pedestrians and disabled persons posed by motor vehicle traffic turning right to enter the city Parking Garage.

We further recommend that the city evaluate whether curb ramps in the corridor comply with requirements under the Americans with Disabilities Act to ensure pedestrian accessibility to the maximum extent feasible.

We recommend that the City evaluate, with an engineering study conducted by the appropriate professionals and with due regard for safety issues, whether well-marked mid-block pedestrian crossings might be appropriate for the "long blocks" along North Third Street between Spring Garden Street and Center Square, and between Ferry Street and Larry Holmes Drive. A program of advance "driver education" to alert the public that such crossings are planned might be necessary to establish an appropriate set of driver expectations of pedestrians crossing in these areas. This program might include

[1] According to www.walkinginfo.org,,"approximate crosswalk installation costs are $100 ($400 for four legs of an intersection) for a marked crosswalk with two transverse lines, $300 ($1200 for four legs of an intersection) for an international crosswalk, and $20,000 ($80,000 for four legs of an intersection; also depends on the size of the intersection) for a patterned concrete crosswalk. Maintenance of the markings must also be considered." http://www.walkinginfo.org/engineering/crossings-crosswalks.cfm

advance notices in public media such as the city's website, and advance signage at the proposed crossing locations (e.g., "Pedestrian Crossing Coming Here in [month/year]"). The driver education component should also include new high-visibility signs at the new crosswalks advising motor vehicle drivers to yield to pedestrians in the crosswalks, and educational information in city utility bill mailings about motorists' duties to yield the right of way to pedestrians in crosswalks.

Finally, we recommend a program to establish additional pedestrian amenities to enhance the overall pedestrian experience along the Third Street corridor, including benches, public art, informational signage, and public restrooms either within the corridor or nearby. With respect to restrooms, the city should not exclusively rely on existing private accommodations and should undertake a study of how public accommodations can be funded and established.

Recommendations for Specific Locations

The City should evaluate, with PennDOT, additional traffic calming measures along College Avenue and improve signage on College Avenue relating to the pedestrian crossing. We have also been informally advised that there is some discussion within City departments concerning moving the mid-block crosswalk further south along Third Street. This would reduce the hazard to crossing pedestrians posed by motor vehicle traffic descending College Avenue at excessive speeds and the proximity of the crosswalk to the curve.

The City should consider evaluating and implementing changes to enhance the "walkability" of College Avenue to encourage pedestrian travel between College Hill and the Downtown district. We consider the best approach to likely be a combination of improvements and small details that collectively will change the pedestrian experience. Candidate improvements include: changing the scale of the lighting fixtures along College Avenue to reduce them to human scale, appropriately lighting the pedestrian walkway and making it feel like a walkway, not merely like a thoroughfare for motor vehicles; creation of public art along the way to create an experience which is visually powerful and integrates downtown with the topographically-separated College Hill.

We recommend that the City evaluate additional traffic calming measures for traffic turning from North Third at the base of College Avenue (across from the Williams Visual Arts Building) onto Bushkill Street including curb extension and/or decreasing the curb radius at that location, and enhancement of the visibility of the pedestrian crossing at that location.

The City should review the necessity for the right-hand-turn-on-red designation at the intersection of Third Street and the Snyder Street/Route 22 exit ramp and consider adjusting the crosswalk markings or adding a "STOP" line in that location to allow more space between vehicles which have exited Route 22 and the pedestrian crossing. The City should also analyze the feasibility of making the intersection curve/curb more flared, with a smaller corner radius to reduce vehicle speed on turning and reduce the problem of "rolling stops" at this intersection.

The City should consider a mix of visual and aesthetic improvements for the Route 22 overpass area in consultation with appropriate authorities and other third parties such as PennDOT. These

improvements could include the following elements, among others: (1) additional plantings along the earthen slopes adjoining the concrete abutment; (2) the use of color to mitigate the visually unattractive blank gray and iron of the overpass structure; (3) additional overhead lighting for the "tunnel"; (4) public art projects such as murals, sculpture, etc.; (5) an explicit message of welcome. A longer-range overall comprehensive re-visioning of the intersection of Third and Bushkill Streets should include further changes to encourage pedestrian travel and improve clarity of traffic flow, particularly for traffic northbound on Third Street, where travel lanes are ambiguous.

We recommend that future phases of planning in this South Third Street/Larry Holmes Drive area specifically address the complex and pedestrian-unfriendly characteristics of this intersection. These include but are not limited to the excessive crossing length, the absence of clearly marked pedestrian crossings and pedestrian refuges, the absence of standard pedestrian-crossing signalization to accompany the controls and the absence of any pedestrian amenities such as benches or public art.

Finally, for the Lehigh River Trail/multi-use path along the Lehigh River bridge, we recommend the installation of a barrier between this path and the roadway of adequate height (perhaps three feet) to protect bicyclists using the trail/path.

I. INTRODUCTION

Background of the EAC

The City of Easton Environmental Advisory Council ("EAC") is an advisory body established by ordinance of the City of Easton pursuant to its authority under the Local Government Code.[2] For organizational and functional purposes, the EAC has established subgroups (referred to as "Affinity Circles") each of which focuses upon a particular subject matter.[3] This is a report of the "Transportation" Affinity Circle, which has responsibility to examine issues relating to all aspects of transportation within the City including pedestrian, bicycle, motor vehicle, and mass transit.

Project Background

Each EAC Affinity Circle established year-end goals for 2009. The 2009 goals of the Transportation Affinity Circle included "providing the City with an analysis of potential enhancements for a pedestrian-friendly urban environment in a critical corridor". The primary goal of the study was to identify the "pedestrian-friendly" weaknesses and strengths of the corridor, to identify potential "pedestrian-friendly" enhancements within the corridor, and to make recommendations to the City Administration for review and action by the appropriate city officials.

A related secondary goal was to conduct a limited review of the available literature concerning urban design for "walkability" and "pedestrian-friendly" elements and to articulate the criteria used in our review so that the lessons learned in our study could be applied to other corridors. However, it was also decided that we would not attempt to establish a rigorous methodology for our study, given that the study was conducted by volunteer non-professionals.

Description of the Street Corridor Segment Studied

Through a process of internal discussion and consensus, the Transportation Affinity Circle determined that the initial study corridor would be Third Street from its intersection with College Avenue at the base of College Hill to the intersection of South Third Street and Larry Holmes Drive. However, upon further examination, it was determined that the study corridor should be enlarged to include the segment of College Avenue bounded on the north by the intersection of College Avenue and McCartney Street because of the relevance of the "walkability" of this street segment to pedestrian traffic on the remainder of the Third Street corridor.

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[2] Pennsylvania's General Local Government Code authorizes municipal governing bodies to establish Environmental Advisory Councils "to advise other local governmental agencies, including, but not limited to...the planning commission... and elected officials, on matters dealing with protection, conservation, management, promotion and use of natural resources, including air, land and water resources" (General Local Government Code, 53 Pa. C.S.A. § 2322) and to "identify environmental problems and recommend plans and programs...for the protection and improvement of the quality of the environment within its territorial limits". Ibid., 53 Pa. C.S.A. §2324(a)(1)

[3] The Easton EAC "Affinity Circles" include: Water, Transportation, Education and Promotion, Urban Forest, Waste-Recycling, Governmental Liaison, and Energy/Green Building.

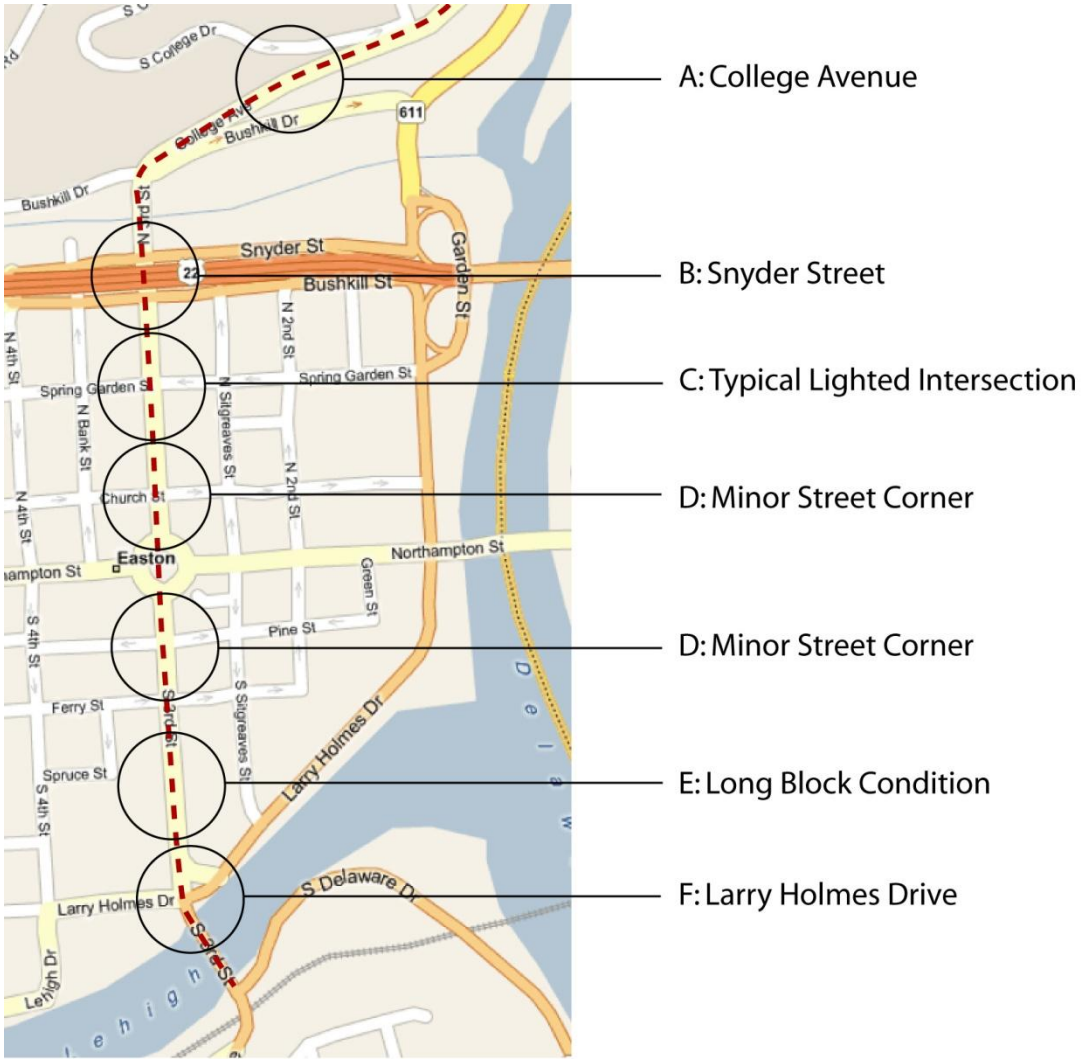

Figure 1 Corridor Map

Issues Considered in this Study The participants evaluated and made observations concerning four general aspects of the pedestrian experience on Third Street: (1) pedestrian safety; (2) pedestrian accessibility; (3) connectivity for pedestrian traffic; (4) "walkability".

II. THOUGHTS ABOUT EASTON'S "WALKABILITY"

We begin our examination of Third Street's "walkability" and "pedestrian-friendly" characteristics with observations about another small American college town in which the relationship between pedestrians and motor vehicles works particularly well: Northampton, Massachusetts. Northampton has a population of approximately 28,500, a size similar to Easton's. Like Easton, Northampton is also a county seat. The Main Street of Northampton has been recognized as one of the "great public spaces"

of the United States.[4] The reasons why Northampton's Main Street deserves this special recognition are described in the following way:

> What sets this street apart is the way pedestrians and vehicles co-exist peacefully, with neither element dominating the other. Although the street is rather wide (four lanes plus diagonal parking), the speed of vehicular traffic tends to be rather slow. In addition, there seems to be an acknowledgement amongst all users of the street that pedestrians have the right-of-way at all times. So, even though crosswalks are not especially abundant, people can cross the street at will without fear of being struck by a vehicle.
>
> Since the volume of vehicular traffic is usually fairly high, the most surprising aspect of this street may be how the motorists don't seem to mind the preponderance of jaywalkers. You can spend an entire afternoon on Main Street without hearing a single honk.
>
> Of course, there wouldn't be so many people crossing the street if there wasn't something drawing them to it in the first place. With its human-scaled environment, historic buildings, and inviting storefronts, Northampton's Main Street is a place that makes people want to stick around and explore.

Easton's fundamental physical fabric -- its own historic buildings within a human-scaled environment, its sidewalk networks along and within a regular street/block structure – also creates the basis for a walkable and pedestrian-friendly environment. With some relatively minor enhancements and attention to details, we can (and should) encourage and facilitate this easy relationship between motor vehicles and pedestrians. Doing so is one important element in facilitating pedestrian activity and honoring Easton's status and promise as a pedestrian-friendly town in which its physical characteristics are as welcoming to visitors as its spirit.

It is important that we pay attention to small details such as those recognized in this report. This is because the experiences of residents and visitors are fundamentally shaped by these details: whether the pavement markings of a crosswalk are faded or recently repainted; whether a long block without crosswalks requires a long walk simply to explore a store on the other side of the street; whether a street feels lively and active because of beautiful public art or whether it feels like a long expanse of concrete; whether it feels safe to walk through a tunnel at nighttime because it is well-lit or whether we avoid the area beyond it altogether because access to it feels insecure.

We recognize that this report will appear critical, because the evaluation was designed to identify problems and to propose recommendations and improvements. However, we would be remiss in failing to note that compared to many of its neighboring municipalities, Easton is an eminently walkable

[4] Project for Public Spaces, "Great Public Spaces: Main Street, Northampton, MA" accessed at: http://www.pps.org/great_public_spaces/one?public_place_id=184

community. Given economic circumstances which encourage a return to more traditional values and scale of living, and facing an energy future which will ultimately force us to transcend our reliance on fossil fuels, walkable small-town environments such as Easton's will be increasingly seen as ever more desirable places to live.

III. OBSERVATIONS APPLICABLE TO THE ENTIRE CORRIDOR

General Observations Concerning Pedestrian Crosswalks

The pedestrian crosswalks[5] along Third Street itself within the study corridor are generally located at intersections which are controlled by traffic control signals. Most importantly, these include the Third Street intersections with Bushkill Street, the Center Square traffic circle, and Ferry Street. In addition, a pedestrian crosswalk was installed mid-block in the 200 block of North Third Street just south of its intersection with College Avenue. This location is not controlled by any traffic control signal.

Relevant Provisions of the Pa. Motor Vehicle Code.

The Pa. Motor Vehicle Code contains the following provisions relating to pedestrian traffic and crosswalks:

> § 3541. Obedience of pedestrians to traffic-control devices and regulations.
>
> (a) Traffic-control devices.--A pedestrian shall obey the instructions of a police officer or other appropriately attired person authorized to direct, control or regulate traffic.
>
> (b) Traffic and pedestrian-control signals.--Local authorities by ordinance may require pedestrians to obey traffic and pedestrian-control signals as provided in sections 3112 (relating to traffic-control signals) and 3113 (relating to pedestrian-control signals).
>
> § 3542. Right-of-way of pedestrians in crosswalks.
>
> (a) General rule.--When traffic-control signals are not in place or not in operation, the driver of a vehicle shall yield the right-of-way to a

[5] Under the Pa. Motor Vehicle Code (75 Pa. C.S.A. §102, definition of "Crosswalk"), a pedestrian crosswalk is: (1) that part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway, measured from the curbs or, in the absence of curbs, from the edges of the traversable roadway; and, in the absence of a sidewalk on one side of the roadway, that part of a roadway included within the extension of the lateral lines of the existing sidewalk; (2) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface. Thus, a "crosswalk" may be marked or unmarked. However, our experience is that motor vehicle operators in this area, with aggressive driving habits, simply do not recognize such unmarked "crosswalks"

> pedestrian crossing the roadway within any marked crosswalk or within any *unmarked* crosswalk at an intersection. [emphasis supplied].
>
> (b) Exercise of care by pedestrian.--No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close as to constitute a hazard.
>
> § 3543. Pedestrians crossing at other than crosswalks.
>
> (a) General rule.--Every pedestrian crossing a roadway at any point other than within a crosswalk at an intersection or any marked crosswalk shall yield the right-of-way to all vehicles upon the roadway.
>
> (c) Between controlled intersections in urban district.--Between adjacent intersections in urban districts at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk.

The downtown district of the City of Easton is within an "urban district".[6] Thus, where traffic control signals are *not* present, drivers of motor vehicles are required to yield the right of way to any pedestrian who is crossing the roadway within any *marked* crosswalk whether or not at an intersection. Such drivers must also yield the right of way to any pedestrian who is crossing within any crosswalk at an uncontrolled intersection, even if the crosswalk is "unmarked". Therefore, for example, at the crosswalk within the 200 block of North Third Street near Lafayette College's Williams Visual Arts Building at the base of College Hill, motor vehicle drivers are required to yield the right of way to any pedestrian crossing Third Street within the crosswalk. If a pedestrian attempts to cross North Third Street within that block at a location other than within the marked crosswalk or at an intersection, the opposite rule applies: the pedestrian must yield the right of way to the motor vehicle.

Importantly, it is *unlawful* for a pedestrian to cross a roadway "between adjacent intersections in urban districts at which traffic-control signals are in operation" except in a marked crosswalk. 75 Pa. C.S.A. §3543. Except for its intersection with Church Street, each intersection along Third Street is controlled by traffic-control signals. Thus, in general, pedestrians crossing Third Street must do so either at the intersection or within a marked crosswalk.

[6] Under the Motor Vehicle Code, an "urban district" is "the territory contiguous to and including any street which is built up with structures devoted to business, industry or dwelling houses situated at intervals of less than 100 feet for a distance of a quarter mile or more". 75 Pa. C.S.A. §102.

The crosswalks along Third Street almost universally consist solely of two painted parallel white lines. These markings are not easily and clearly seen from a distance by a motor vehicle driver.

Figure 2 Intersection of S. Third St. and Pine St., facing south

Figure 3 Intersection of N. Third Street and Bushkill Street, facing north

Because these crosswalks consist solely of two painted lines, good maintenance of the markings is crucial to preserve their visibility. As a general matter, pedestrian crosswalk markings at the intersections of Third Street are in good condition, except for some fading at the intersection of South Third and Ferry Streets. However, we have noted that numerous other crosswalks across streets which intersect Third Street require repainting, especially where road repairs have been performed in the intersections and affected crosswalks have not been repainted. We recommend that the City undertake a visual survey of the crosswalks in the downtown area to determine where repainting or other maintenance is required.

In contrast with the generally-used parallel lines, the crosswalk in the 200 block of North Third Street is a high-visibility pedestrian crosswalk with decorative paving and lampposts. The crosswalk is shown below in Figure 4, a series of still frame captures from the PennDOT State Highway Video Inventory (northerly direction of view).

Figure 4: 200 Block of North Third Street (northerly view)

The crosswalk shown with its overall context within the corridor is shown below, in Figure 5:

In addition, the crosswalk is also clearly identified with a standard diamond shape pedestrian crosswalk sign (W11A-2). It is obviously important for motor vehicle operators to recognize the existence of a crosswalk sufficiently far in advance of the crosswalk to influence driving behavior so that they are in a position to yield the right of way to pedestrian traffic if required. The simple markings of two parallel white lines perform this function minimally and perfunctorily.

Figure 5: 200 Block of North Third Street as viewed from Lafayette College steps

The City's use of two simple painted parallel white stripes unfavorably compares with the "zebra" or "ladder" markings for pedestrian crosswalks such as those depicted in Figure 5. The "zebra" or "ladder" markings are significantly more visible and have been shown to improve pedestrian safety. See, "Zebra Crosswalk Markings", New York, NY, Case Study No. 37, http://www.walkinginfo.org/ pedsafe/casestudy.cfm? CS_NUM=37. In a study of nine intersections which had simple parallel white lines, the pedestrian-vehicle crash rate declined after the intersections received ladder or zebra crosswalk markings; the value of both ladder and high visibility markings in terms of absolute crash reduction was positive; the number of vehicle-pedestrian incidents at the nine test intersections fell from 36 to 21, a decrease of 42 percent over a one year period.

The FHWA now recommends that pedestrian crosswalks be designed "as enhanced crosswalks that combine highly visible markings (ladder striping) with additional pedestrian treatments, such as shorter crossing distances, traffic calming and medians". FHWA, Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide, Chapter 8, Pedestrian Crossings, Section 8.5.3, "Recommendations for Enhancing Pedestrian Safety and Access", accessed at http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks208.htm. Indeed, while uniformity of message through consistent visual design should not be ignored, we note that crosswalks need not be purely functional in appearance; highly decorative crosswalks could be designed and painted, such as the one depicted in Figure 6:

Figure 6: Decorative Crosswalk near Bryn Athyn, PA

The ability to easily cross a street is not just dependent on mere "surface" features such as crosswalk markings; it is also highly dependent on the basic street and block structure. In the next section, we address the problem of block length and walkability.

The Problem of the "Long Block"

"Walkability" is sensitive to block size, and "block lengths of 300 feet or less are desirable". Pedestrian- and Transit- Friendly Design: A Primer for Smart Growth, Reid Ewing, Smart Growth Network, p.4 (http://www.epa.gov/livability/pdf/ptfd_primer.pdf). This is not merely a matter of physical distance and physical fitness:

> There may be psychological factors at work as well. It has been suggested that more intersections give pedestrians more sense of freedom and control as they need not always take the same path to a given destination; that more intersections make a walk seem more eventful, since it is punctuated by frequent crossing of streets; that more intersections may shorten the sense of elapsed time on walk trips, since progress is judged to some extent against the milestone of reaching the next intersection.

Ibid.

Thus, a long block of uninterrupted length without crosswalks (which would create "psychological intersections" and allow pedestrians to safely cross to explore the other side of the street), can impair walkability and engender a sense of isolation which is self-reinforcing if pedestrians avoid the block because it is not easy to cross or explore.

Relatively long blocks along the Third Street corridor include the 0-99 block of North Third Street between Spring Garden Street and Center Square (approximately 575 feet, based on Google Earth aerial photography and line length analysis) and on South Third Street between Ferry Street and Larry Holmes Drive (in excess of 650 feet, also based on Google Earth aerial photography and line length analysis).[7] Thus, the length of both of these blocks is twice the block length deemed "desirable". There are no mid-block crosswalks and no way to safely – or lawfully -- cross the street except by walking the entire length of the long block to reach an intersection. Exacerbating this problem along South Third Street at the intersection of South Third St. and Larry Holmes Drive is the explicit prohibition of pedestrian crossing of South Third Street (with the presence of an international symbol "no pedestrians" sign), and the absence of any marked crosswalk allowing a pedestrian to cross Third Street. In general, this extremely wide (crossing distances exceeding 100 feet), complicated and "illegible" intersection precludes pedestrian travel with any confidence or certainty. [8]

This long block at Larry Holmes Drive effectively forces pedestrians coming down the hill on Washington Street from the Courthouse area, or from the Quality Inn on the hotel side, to walk all the way down to Ferry Street in order to cross Third Street at a location which appears to be safe and to have a reasonable crossing distance.

We also have observed occasions in which pedestrians unsafely cross these "long blocks" of Third Street at locations other than at intersections, simply because of the inconvenience of walking the length of the block to an intersection. We recommend that the City conduct a study to evaluate the advisability of installing well-marked "ladder" or other improved crosswalks within these long blocks, together with other measures such as signage and "driver education", to increase walkability of these areas while minimizing the safety hazards caused by pedestrians who unlawfully cross these blocks in an uncontrolled manner at random locations. The driver education component should include new high-visibility signs at the new crosswalks advising motor vehicle drivers to yield to pedestrians in the crosswalks, and educational information in city utility bill mailings about motorists' duties to yield the right of way to pedestrians in crosswalks.

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[7] The intersection of North Third Street and Church Street may technically constitute an intersection at which there exists an unmarked pedestrian crosswalk as a matter of law. Because Church Street is a narrow, one-way alleyway, it does not function or appear the same way as other intersections. If this is to reasonably function as a pedestrian crosswalk at which motorists will yield the right of way, it must be clearly marked as such.

[8] See, infra, photographs at Figures 17 to 19. The absence of a marked crosswalk at South Third Street and Larry Holmes Drive is clearly not the only problem for pedestrians at this intersection. We discuss below several of the other characteristics of this area which make it singularly pedestrian-unfriendly.

Curb Ramp Design and Current Standards

Two problems generally pervade downtown crosswalks: the use of currently-disfavored diagonal curb ramps and the absence of "detectible warnings", as currently required by ADA standards. We assume that City engineering is aware of these problems and that City standards now require compliance with current applicable curb ramp standards. We review the issue here so that the reader of this report will have an understanding of the issue and the recommendations we make below.

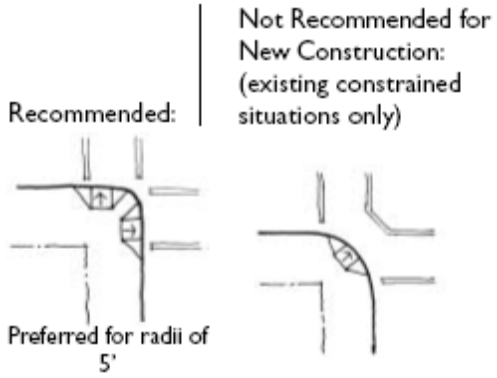

Figure 7: Diagonal vs. Perpendicular Curb Ramps

The design of the downtown curb ramps at crosswalks are curb cuts primarily on the diagonal rather than two perpendicular curb cuts. The diagonal curb ramp is a design which is not recommended. See, Planning and Designing for Pedestrians, Model Guidelines, p. 43.

Diagonal crosswalks have the effect of directing the movement of disabled persons using wheelchairs, and visually impaired persons, directly into the middle of intersection traffic, rather than directing their movements toward the sidewalk on the other side of the street. A prime example of this problem is the crosswalk at Pine Street near the City Parking Garage, depicted in Figure 2, p. 10..

As the FHWA has stated:

> In many situations, diagonal curb ramps are not recommended. Diagonal curb ramps force pedestrians descending the ramp to proceed into the intersection before turning to the left or right to cross the street. This problem is worse at intersections with a tight turning radius and without on-street parking because wheelchair users are exposed to moving traffic at the bottom of the curb ramp. Furthermore, diagonal curb ramps can make it more difficult for individuals with vision impairments to determine the correct crossing location and direction.

FHWA, Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide, Chapter 7, Curb Ramps, Section 7.2.2, Diagonal Curb Ramps, http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks207.htm

Diagonal curb ramps are disfavored because they:

> Put pedestrians into a potential area of conflict with motorists who are traveling straight or turning;
>
> Require turning at the top and bottom of the ramp;
>
> Provide no alignment with the proper crossing direction, which is difficult for most people with disabilities;

> Make the essential level maneuvering area difficult to achieve at the bottom of the curb ramp; and
>
> Can cause a person with a vision impairment to mistake a diagonal curb ramp for a perpendicular curb ramp and unintentionally travel into the middle of the intersection due to the lack of, or ambiguous, audible cues from the surge of traffic.

Ibid.

It may be appropriate to alter some of the existing diagonal curb ramps at selected high-traffic locations to avoid these recognized problems, particularly at a location such as the Pine Street curb ramp outside of City Hall because of the combination of the tight turning corner into Pine Street [CORRECT?] and the traffic volume turning right into Pine Street in order to reach the public parking garage.

ADA Standards Compliance

In addition, we found very few curb ramps at crosswalks with "detectable warnings" as required by current federal ADA standards. Detectable warnings consist of a series of small domes that contrast in color with the surrounding sidewalk or street. They must be integrated into the walking surface, and there are specific measurements for the size and spacing of the domes. See, e.g., http://www.ada.gov/pcatoolkit/chap6toolkit.htm.

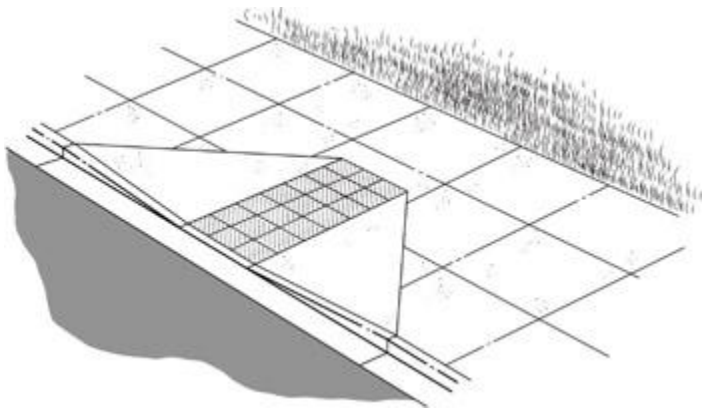

Figure 8: Curb ramp with detectible warning

ADA guidance documents state:

"Detectable warnings are intended to function much like stop signs for pedestrians who are blind or have low vision. The warnings, which are intended to be felt with pedestrians' feet, alert blind individuals and those with low vision that they are about to enter a street or other area where cars pass. A detectable warning alerts pedestrians who are blind or have low vision that they need to stop and determine the nature of the hazard – such as whether there is passing traffic – before continuing on their way. " Ibid.

Based on our observations, these detectible warnings on downtown curb ramps are rare. Notable exceptions are those diagonal curb ramps which are located immediately outside City Hall and across the street from City Hall, and along the sidewalk in the 200 block of North Third Street near the Lafayette College gate. We assume that detectible warnings have been installed at curb ramps which have been newly constructed or substantially altered since the standards requiring them became effective. While we have not researched whether curb ramps in the city otherwise comply with federal

ADA requirements, we question whether they do; at least they do not comply with current ADA standards applicable to newly constructed curb ramps. [9]

Recommendations for Crosswalks:

At a minimum, we recommend that the pedestrian crosswalks along Third Street (and along intersecting cross-streets) be examined and repainted where required. At the time of such repainting, we recommend that additional markings be used in addition to two simple white lines to enhance the visibility of these crosswalks; so-called "zebra" or "ladder" striping or similarly high visibility markings should be used whenever feasible.

We recommend that consideration be given to replacement of the simple pavement markings with installation of the type of improved crosswalk within the 200 block of North Third Street (depicted in Figure 4), whenever feasible. This is especially applicable due to its characteristics as a heavily-traveled thoroughfare and fairly dense, mixed use streetscape for which the City wishes to encourage pedestrian traffic. This is true particularly because of the retail businesses within this Street Corridor Enhancement Overlay Zoning District and its location (subject to final alignment decisions) along the Bushkill Creek Heritage Trail. While we recognize that City budgetary constraints may cause other roadway improvements to command a higher priority, these recommendations should be implemented where such roadway improvements are proposed for crosswalk intersections.

We also recommend that the City alter existing diagonal curb ramps and replace them with perpendicular curb ramps at selected locations such as the intersection of South Third Street and Pine Street to mitigate the risk to pedestrians and disabled persons posed by motor vehicle traffic turning right to enter the city Parking Garage.

We further recommend that the city evaluate whether curb ramps in the corridor comply with requirements under the Americans with Disabilities Act to ensure pedestrian accessibility to the maximum extent feasible.

We finally recommend that the City evaluate, with an engineering study conducted by the appropriate professionals and with due regard for safety issues, whether well-marked mid-block pedestrian crossings might be appropriate for the "long blocks" along North Third Street between Spring Garden Street and Center Square, and between Ferry Street and Larry Holmes Drive. A program of advance "driver education" to alert the public that such crossings are planned might be necessary to establish an appropriate set of driver expectations of pedestrians crossing in these areas. This program might include advance notices in public media such as the city's website and tax and utility billings, and advance signage at the proposed crossing locations (e.g., "Pedestrian Crossing Coming Here in [month/year]"). In

[9] The question of whether the curb ramps comply with ADA standards can be complex, depending on a number of factual questions such as when the roadway was constructed or altered, and whether the curb ramps which were created "provide accessibility to the maximum extent feasible".

addition, consideration should be given to installation of the standard yellow vertical "State Law - Yield to Pedestrian" signs at these mid-block crosswalks.

Beyond these functional and physical changes, we believe that it is important to inculcate a change in culture or "mindset", which elevates the priority of the safety, comfort and ease of movement of pedestrians through this area of town. It has been noted by third party observers that motor vehicle drivers in the Lehigh Valley are "aggressive". Moreover, it is obvious that most motor vehicle drivers do not understand or comply with their duty to yield the right of way to pedestrians in crosswalks. We have collectively observed the routine violation of these duties by motorists who speed through crosswalks while a pedestrian is attempting to cross within the crosswalk. In many other cities, such conduct would be considered intolerable. In fact, in those cities with which we recognize as pedestrian-friendly such as Northampton, MA, the behavior of motorists which we accept as routine here would be perceived as extremely anti-social. We therefore recommend a program of strict enforcement of the motor vehicle code provisions requiring motor vehicle operators to yield the right of way to pedestrians where applicable. This will serve the purposes of re-educating motor vehicle drivers, reducing the risk of vehicle-pedestrian collisions, and beginning the process of reshaping the mind-set of drivers to make the city more pedestrian-friendly.

Pedestrian Amenities, Street Furniture and Accessibility Obstructions

In general, we noted the paucity of pedestrian amenities along the study corridor. Street furniture, such as tables and benches, were observed in front of the Easton Bus Terminal (benches); within Center Square (benches); in front of the Quadrant Book Mart at 20 N. Third Street (seasonal tables); and in front of 26 N. Third Street (pedestrian bench). Furniture can create a visually interesting environment for pedestrians and encourage greater use of the street as a public space. "Street furniture design should be sympathetic to the surrounding environment and, where it is intended for use by pedestrians, should be accessible to all types. There should be a good color contrast between street furniture and background surfaces to ensure it is conspicuous to the vision impaired." The Design of the Pedestrian Network, Ch. 14, p. 14-11. Properly placed so as to avoid creating obstructions, additional such amenities would further create a sense of place and belonging for pedestrians.

We also observed some points along Third Street in which the pedestrian travel path was effectively reduced due to projections into the footpath, such as newspaper boxes, sandwich boards, and other objects. In some cases, although almost certainly inadvertent, the obstructions would preclude wheelchair movement. An example (since corrected) is depicted in Figure 9. Property owners should be reminded that they must avoid sidewalk obstructions which make the path of travel along a sidewalk inaccessible for wheelchair passage.

Figure 9: N. Third Street (0-100 block), facing south

We also noted that additional bicycle rack locations are needed at the bus terminal, near the Center Square area (but perhaps not within Center Square, which would force all users to cross the traffic circle), and other locations within the corridor. Easton Main Street Initiative is working on bicycle rack locations and design with the Arts Community of Easton ("ACE") on a project to install bicycle racks with modifications as a public art project. We wholeheartedly support this project.

Finally, we observed the acute need either for additional public restrooms or for a program of systematic identification and public awareness of the locations of businesses that permit public use of their restrooms. Perhaps the City could undertake a program to encourage such businesses to post a standardized sign which would identify such businesses as being particularly welcoming to visitors. But the city should not exclusively rely on such private accommodations and should undertake a study of how public accommodations can be funded and established.

Other Details

We observed that in various locations, sidewalks and curbs required repair and maintenance. Sidewalk maintenance is generally the responsibility of the adjacent property owners. However, we also noticed that in some locations the curbing itself required repair. This should be a matter for City code enforcement.

The LANTA bus stop markers are visually unattractive and are not clearly visible at a distance. We also observed that the bus stops, even those with shelters, do not contain posted copies of the applicable bus schedules. This makes use of mass transit inconvenient and impairs efficient use of riders' time. Posted schedules will allow riders to know how long they will need to wait for the next bus and to otherwise plan their trips.

IV. SPECIFIC SEGMENTS OF THE CORRIDOR WHICH REQUIRE SPECIAL ATTENTION

We have noted that in general the City of Easton is an eminently walkable community. However, there are two segments of the study corridor which present special challenges and require particular attention: College Avenue to the Route 22 overpass and the South Third Street intersection with Larry Holmes Drive.

College Avenue to the Route 22 Overpass: The Pedestrian Experience

The addition of the pedestrian crosswalk at the Williams Visual Arts Building was a welcomed and substantial improvement which enhanced the pedestrian-friendly characteristics of this street segment. However, this improvement remains only a beginning step in a process to address the pedestrian issues along College Avenue and Third Street down to the Route 22 overpass. We are not privy to the ongoing planning process for further improvements to this gateway approach to College Hill. We recognize that the issues raised by our observations may be well-understood by the relevant decision makers and are being addressed in other planning processes. We offer our observations here nevertheless as another voice urging further improvements.

Absence of Pedestrian Crossing Controls or Signalization at Key Intersections

In addition to the poor visibility pedestrian crossing markings at the intersection of North Third Street/Bushkill Streets, this intersection and the one at North Third Street/Snyder Street are not controlled by pedestrian crossing "push-button" controls. This is in contrast to the "push-button" pedestrian controls provided to address crossing problems at the intersection at the other terminus of the study road segment: South Third Street and Larry Holmes Drive.

There is some pedestrian "signalization", consisting of traffic lights which are visible to, and control the movement of, pedestrians crossing Third Street on the south side of the Route 22 overpass at Bushkill Street, but which are not visible to traffic along Bushkill Street. These signals are virtually identical in appearance to ordinary traffic signals and it is not immediately apparent that they are designed and intended to only control the movement of pedestrians. Pedestrian signalization should be clear and unambiguous.

Ideally, the highway-scale "overhead" traffic signalization (see, e.g., Figures 11, 12) would be replaced by lower, "car-level" signalization placed at the corners, so that a driver would be forced to stop further back from the intersection in order to see the traffic signals. These signals would appear closer to the drivers' eye-level, encouraging drivers to look at "pedestrian-level", and see pedestrians, rather than looking high above eye level.

Difficulty in Pedestrian Crossing at Bushkill Drive

Pedestrians walking in a northerly direction along the east side of North Third Street to reach the sidewalk along College Avenue are forced to cross Bushkill Drive under conditions which are made difficult and feel insecure due to a combination of factors. See Figure 10. Because of the acute angle of the intersection, it is often impossible to determine whether motor vehicle traffic along North Third Street toward College Avenue will proceed up College Avenue or whether it will enter Bushkill Drive. This problem is exacerbated by the relatively high speed of motor vehicles at that location, the failure of drivers to use turn signals signaling a right-hand turn at that location if intending to turn onto Bushkill Drive, and the absence of a visible crosswalk (the existing crosswalk is so faded as to be invisible to motor vehicle traffic) which would visually remind drivers that pedestrians may be crossing the street at that location.

Figure 10: College Avenue and Bushkill Drive

We recommend that the City evaluate additional traffic calming measures for traffic turning into Bushkill Street including curb extension and/or decreasing the curb radius at that location, and enhancement of the visibility of the pedestrian crossing.

Pedestrian Crossing Hazard Due to Right Hand Turn on Red

At the intersection of North Third Street/Snyder Street, traffic exiting the Route 22 westbound off-ramp is permitted to turn right on red. As a consequence, traffic frequently enters the pedestrian crosswalk at that location and barely slows down to proceed north on College Avenue, creating a risk of collision with pedestrians lawfully entering the crosswalk. The right hand turn-on-red designation should be reviewed and reconsidered if feasible. Another possibility is to make the intersection curve/curb more flared, with a smaller corner radius, thus "shorten[ing] crossing distances for pedestrians" and" compel[ing] motorists to slow down as they negotiate [the] corner" and "discourag[ing]

Figure 11: Intersection, N. 3rd St. and bottom of Route 22 westbound exit ramp (at Snyder St.)

dangerous rolling stops." Pedestrian and Transit-Friendly Design: A Primer for Smart Growth, p. 9.

The Route 22 Overpass as Visual, Physical and Psychological Barrier

The dominant presence of the Route 22 overpass crossing Third Street creates an imposing visual, physical and psychological barrier, which separates the downtown area from the North Third Street/College Avenue area. It is easy to see from the aerial photograph of this area (Figure 12) how the overpass simply cuts through Third Street, physically dividing the community and interrupting the sense of place and continuity. The overpass abutment and elevated roadway terrain essentially form a huge wall which is interrupted by a "tunnel" which is itself uninviting to pedestrians and engenders a sense of isolation. In one sense, the question is a simple one: does this feature of the cityscape say, "please come in; you are welcome", or "don't come here"? Under certain conditions such as nighttime, travel through the "tunnel" can feel desolate and foreboding.

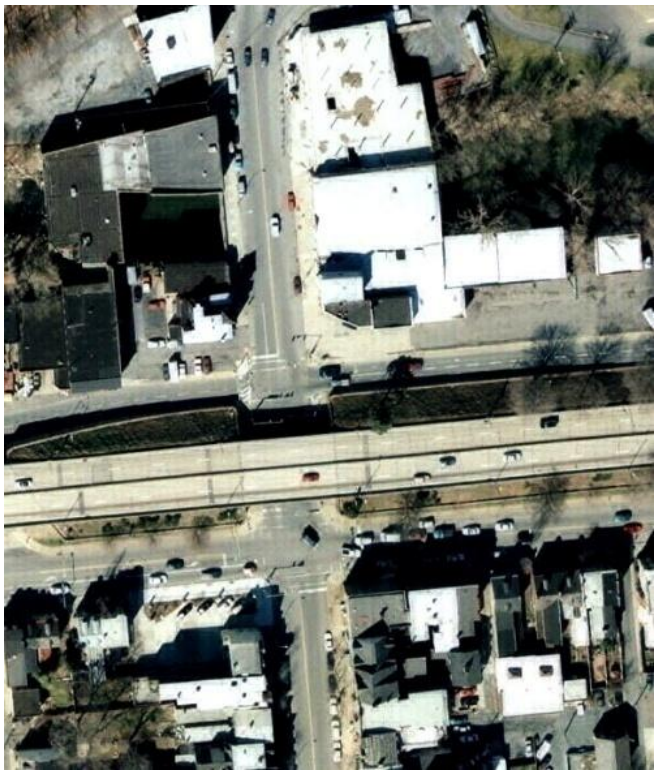

Figure 12: Orthophoto Quad aerial photograph from City GIS (506707.tif)

Figure 13 - North Third Street and Bushkill St (facing northward)

Figure 14: North Third Street and Bushkill Street (facing north, northeast).

The blank, high barrenness of the concrete and iron overpass further accentuates the sense of isolation and lack of human scale as one passes beneath it. At nighttime, there is inadequate illumination for pedestrians walking beneath the overpass, provided by a single (sodium?) light fixture and spillover from street lighting. The sense of physical isolation and the lack of good lighting engender a sense of insecurity. This does not encourage pedestrian traffic from the College Hill area to a nightlife downtown. In addition, the lack of a protective barrier between pedestrians walking through the tunnel and motor vehicles traveling along Third Street creates an insecure feeling. We therefore recommend that a series of bollards be placed along the edges of the sidewalks through the tunnel to protect the pedestrians and to create a feeling of greater security. Ideally, they would be lighted for nighttime pedestrian travel.

Figure 15: Example of bollard placement for pedestrian protection

We note that there is an alternative pedestrian tunnel along Bushkill Street to the east of the overpass. However, its current purpose is unclear, and its presence is not marked by any directional signage at nearby intersections. Unless you already know it is there, you would never know it is there.

Visual and aesthetic improvements could reduce the sense of the structure as an unwelcoming barrier. For example, the use of color, plantings, light and public art could mitigate the barren visual presence of the abutment and tunnel. The potential for public art to enhance pedestrian-friendliness and to create and shape a positive sense of place is discussed in more detail below.

A longer-range overall comprehensive re-visioning of the intersection of Third and Bushkill Streets should include further changes to encourage pedestrian travel and improve clarity of traffic flow, particularly for traffic northbound on Third Street, where travel lanes are ambiguous. An example of one such re-envisioning (William Dohe, AIA) of the intersection is depicted below:

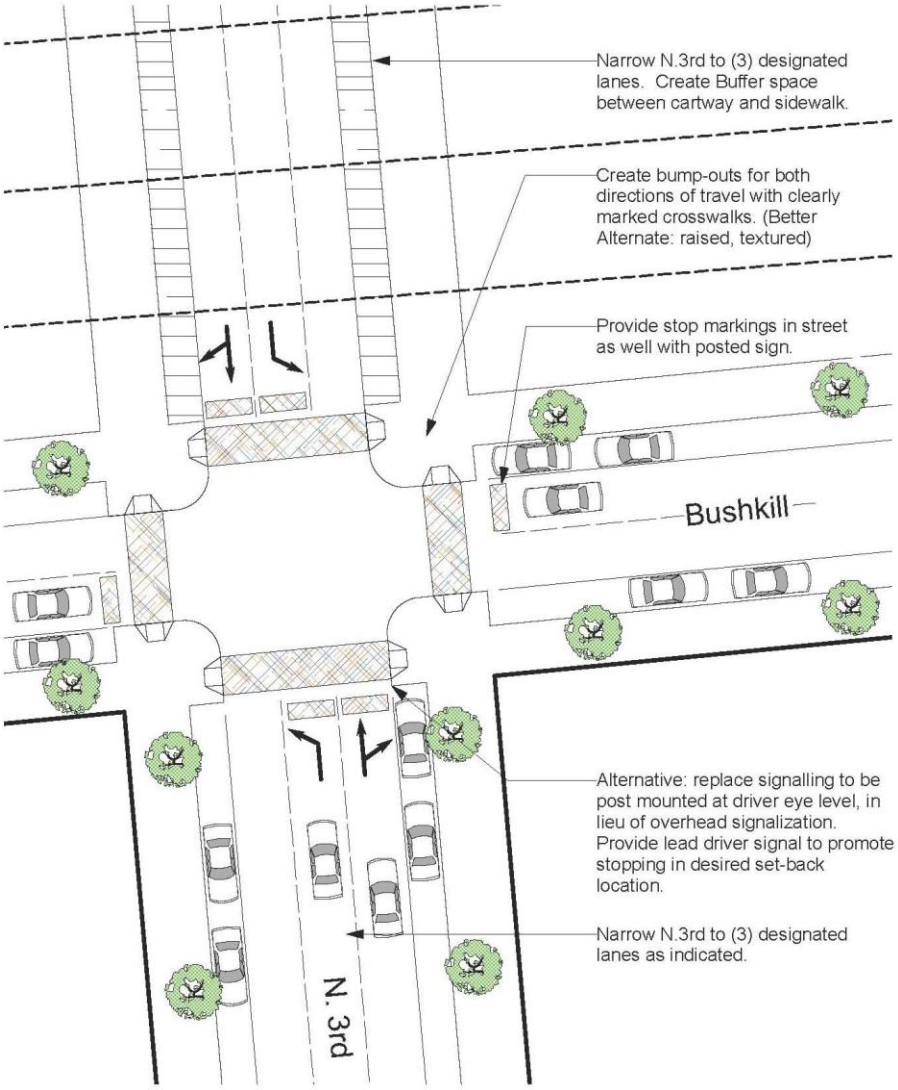

Figure 16: Example of possible changes to 3rd St./Bushkill intersection

Recommendation: The City should consider a mix of visual and aesthetic improvements for the Route 22 overpass area in consultation with appropriate authorities and, if required, third parties such as PennDOT. These improvements could include the following elements, among others: (1) additional plantings along the earthen slopes adjoining the concrete abutment; (2) the use of color to mitigate the visually unattractive blank gray and iron of the overpass structure; (3) additional lighting for the "tunnel", including lighting which spills light along the stone wall surfaces; (4) public art projects such as murals, sculpture, etc.; (5) decorative and lighted bollards along the sidewalk through the tunnel to create a sense of pedestrian travel behind a protective barrier; (6) an explicit message of welcome at each end of the tunnel identifying that the traveler is entering Historic downtown Easton, or Historic College Hill.

In addition, in the longer term, the City should evaluate changing the existing "overhead" highway-type traffic signals to post-mounted signals at driver-eye level to promote stopping at desired set-back location and to maintain driver eye contact at pedestrian-level. It should also review travel lanes and markings to reduce the ambiguity for traffic traveling north on Third Street near the Bushkill Street intersection.

Public Art and "Placemaking"

The use of public art as a pedestrian-enhancing measure should not be limited to the Route 22 overpass area. The installation of public art all along the College Avenue segment of the study corridor could be used as a way to better integrate two areas which are otherwise separated by topography and terrain, and psychological and socioeconomic distance. The power of public art has been described thusly:

> "Place Makers – Public Art That Tells You Where You Are" [10] profiles dozens of artworks that help define and enrich public places. The book defines public art broadly, as it should. Among the works it profiles are sculpture, murals, decoratively shaped fountains, inlaid pavements, and mosaic-covered benches. Anecdotal evidence suggests that introducing public art in public places can increase pedestrian activity. Public art has this power because it is not just artistic, like art in private collections. It is placemaking. If public art is sufficiently monumental, it can overcome a fragmented frame of buildings that, by itself, could not contain space. The art must have a vertical thrust to serve as a marker, and an open design to grasp and hold the space around it. This principle applies both to streets, whose end points can be marked with public art, and to parks and other public spaces, whose centers can be defined by public art.

Pedestrian And Transit-Friendly Design: A Primer for Smart Growth, Reid Ewing, Smart Growth Network, p.22, available at http://www.epa.gov/livability/pdf/ptfd_primer.pdf (based on a manual prepared for the Florida Department of Transportation and published by the American Planning Association).

[10] R.L. Fleming and R. von Tscharner, Place Makers -Public Art That Tells You Where You Are, The Townscape Institute, Cambridge, MA, 1981.

The College Avenue Segment: Barriers to Connectivity

The lack of a sense of connectivity, the topographical barrier, lack of protection from exposure to elements and the physical difficulties presented by steep grade all combine to make pedestrian travel along this thoroughfare unattractive, increasing the sense of isolation of College Hill from downtown.

The pedestrian walking down College Avenue is challenged not merely because of the sense that at the bottom of the steep grade he or she will be greeted by an unfriendly barrier-like physical environment but also because the experience itself along the way is not particularly pedestrian-friendly. Pedestrian travel is only possible on one side of the roadway, as the sidewalk only exists on one side and traffic routinely travels on the other (in a downgrade direction) at speeds far too high to make walking along that side safe. For a pedestrian traveling downtown from College Hill via McCartney Street (the only other street on College Hill intersecting College Avenue), the very beginning of the journey is troublesome. There is no uninterrupted sidewalk connecting such a pedestrian's travel down McCartney Street and thence along College Avenue. To reach the sidewalk down College Avenue, a pedestrian must cross College Avenue without any marked crosswalk, at a location not far distant from an acute and blind curve.

Figure 17: College Avenue and McCartney St.

The only other reasonably direct paths of travel down College Hill to downtown are through the Lafayette College campus, down a set of stairs which lead to the college gate at the bottom of the hill at College Avenue. These paths are neither marked nor public, as the Lafayette College campus is technically private property, not a public thoroughfare.

We recognize obviously that we cannot change the road grade or the topography. College Avenue is wide enough to perhaps permit the installation of a sidewalk on the northerly side of College Avenue. The feasibility and cost of sidewalk installation along that side of College Avenue should be evaluated.

What else can be changed to make this path more "walkable"? There is no single solution to this problem; rather the solution will likely be found in a combination of improvements and small details that collectively will change the pedestrian experience.

One possibility includes a change in the scale of the lighting fixtures along College Avenue to change them to human scale, appropriately lighting the pedestrian walkway, in contrast with the existing highway-scale lighting, the function of which is to provide mid-roadway lighting for motor vehicle drivers. The message of the existing lighting fixtures is that this is a pathway for cars, not for people; this is not a town, but a highway where people do not belong. Another possibility is the installation of bump-outs along the north side of College Avenue with additional street trees which would reduce speed and enhance the visual experience.

The open expanse on the [eastern] side of College Avenue creates a somewhat interesting vista. However, this openness precludes any sense of "visual enclosure" which actually enhances walkability.[11] Pedestrian- and Transit- Friendly Design: A Primer for Smart Growth, Reid Ewing, Smart Growth Network, p. 11. See photograph (Figure 18) below.

Figure 18 - College Avenue at intersection with McCartney St., facing southwest

[11] Briefly explained, a sense of "visual enclosure" of streetscapes occurs when bordering buildings or structures block a pedestrian's vision so that an "outdoor room" is created. "By making a street more roomlike, we also make it more pedestrian-friendly. People like rooms; they relate to them daily in their homes and work places and feel comfortable and secure in them. Drivers respond to the sense of enclosure by slowing down, making the street that much more pedestrian-friendly." Pedestrian- and Transit- Friendly Design: A Primer for Smart Growth, Reid Ewing, Smart Growth Network, p. 11.

Possible (although imperfect) substitutes for structures may include street trees, or other strong markers (Ibid.). "Spatial definition is thus achieved by means of focal points rather than enclosure". Ibid. We note the recent additional plantings of street trees along College Avenue. These are very welcome. We also note that these trees will not serve to create a sense of visual enclosure until they approach maturity. The presence of the open vista, lack of visual enclosure, lack of visual "friction" etc., impairs the walkability of this roadway segment also because it tends to increase the speed of traffic. One way to accomplish both a reduction in the speed of traffic and an increase in a sense of visual enclosure would be to construct bump-outs along College Avenue with additional street trees. In addition, pedestrians walking along College Avenue should feel more physically protected from the traffic through the installation of bollards along the sidewalk edge down College Avenue, or at least particularly at the top of College Avenue near the sharp curve.

Another possibility is the creation of public art along College Avenue to use its power to increase pedestrian activity. Public art can be used as end points compensating for a weakly defined street space. The city might explore a possible partnership between Lafayette College's art department and the Easton arts community to create public art along College Avenue, given its status as a primary gateway/path to the college. Such a project might be particularly appropriate in light of the presence of Lafayette College's Williams Visual Arts Building, as a natural terminus for a path of art work along College Avenue. Other ideas may include such things as a visual canopy over the street which might provide some additional "visual friction", banners which create a coherent visual experience along College Avenue, or an annual art competition for a Christo-like artwork (e.g., the Gates in Central Park, New York, NY, see, e.g., http://www.christojeanneclaude.net/ tg.shtml, depicted below in Figure 15) which would have the potential to annually transform and renew the pedestrian experience of the corridor.

Figure 19 - Installation of "The Gates", Central Park, New York City

Improved Signage for the Pedestrian Crosswalk Near the Williams Visual Arts Building

We have previously mentioned the decorative crosswalk at the base of College Avenue. Because the crosswalk is at the bottom of a long steep downgrade and around an essentially blind curve, there is signage along College Avenue which is intended to alert motor vehicle drivers to the upcoming crosswalk. This signage is depicted in the photograph below:

Figure 20 - College Avenue traveling south

We believe the signage announcing the crosswalk needs to be improved, or additional signage provided. The literal message – "yield to peds in crosswalk" is fine. However, the existing signage is inadequate in size and visual effect. The message should not be merely in text; a standard yellow pedestrian sign should be placed in an appropriate location along College Avenue above the crosswalk. As the photograph shows, the text sign refers to a crosswalk which is not yet in sight: it is further down the hill, unseen, around an acute curve to the left. Because the crosswalk is not visible until exiting the curve, drivers have a very short distance (approximately 150 feet) to visually identify the crosswalk before reaching it. At 20 mph (a speed greater than the posted 15 mph curve limit, but a speed routinely observed), this is about 5 seconds. Drivers unfamiliar with the area will have no understanding that there is a crosswalk much further down the road, around the upcoming curve. There are old, worn crosswalk markings at the bottom of the hill near the Lafayette College gate which a motor vehicle driver may (incorrectly) assume is the crosswalk to which the sign refers. The sign would be more effective if it were accompanied or preceded by additional or more visible signage such as a sign which said "Crosswalk Ahead", or a similar message. Another potential measure would be "Ped X-ing Ahead" signs along College Avenue with flashing yellow lights that are activated by a signal button at the crosswalk itself.

Another possible mitigation feature for this speed problem might be a simple white line painted along the side a car-width from the edge of the cartway to suggest a potential (but illusory) parking lane to

reduce the perceived lane width, and thus reducing drivers' sense of space and freedom which encourages excessive speeds, particularly on the steep downgrade slope of College Avenue.[12]

Recommendation: The City should evaluate, in consultation with PennDOT to the extent required, additional traffic calming measures along College Avenue and improve signage relating to the pedestrian crossing. We have also been informally advised that there is some discussion within City departments concerning moving the crosswalk further south along Third Street. This would reduce the hazard to crossing pedestrians posed by motor vehicle traffic descending College Avenue at excessive speeds and the proximity of the crosswalk to the curve.

The South Third Street intersection with Larry Holmes Drive*: *Pedestrian Unfriendly and "Illegible"

The other walkability "problem child" is the intersection of South Third Street and Larry Holmes Drive, which presents significant challenges and problems. The entire intersection area is confusing, complex, and "illegible" for pedestrians. The "long block" problem at this intersection was described above in this report. But the problem is not simply a "long block" problem. An aerial photograph of the intersection (Figure 21, below) is illuminating:

[12] PennDOT's "Pennsylvania's Traffic Calming Handbook", Publication 383, January 2001 states: "Many residential streets have been constructed to such a width that getting motorists to obey a 25 or 30 mph posting is extremely difficult. In addition, it can be costly to physically narrow the roadway or install various physical traffic calming measures. A low-cost way of reducing speeds is to narrow the roadway lane through the use of edge lines and centerlines. A number of jurisdictions across the country have installed this type of pavement marking application to create 9 to 10-foot-wide lanes. These applications have generally reduced speeds by 1 to 2 mph with reported reductions as high as 5 mph in some locations." (p. 62). However, we also note that the Handbook states that "[t]his pavement marking application is appropriate on local streets and low-volume minor collectors, but should not be used on major collector or arterial streets." Ibid. Based on the City's 1997 Comprehensive Plan, the upper/northerly portion of College Avenue appears to be classified as a minor arterial, and then changes to a principal arterial at some point near its intersection with Pearl Street. City of Easton Comprehensive Plan, Functional Classification of City Streets, p. 40. The rationale for not recommending its use on a street such as College Avenue is not entirely clear. However, because PennDOT's Handbook does not recommend edge line markings for a street with high volume traffic, we do not formally recommend their use here and urge the City to explore other traffic calming measures if feasible.

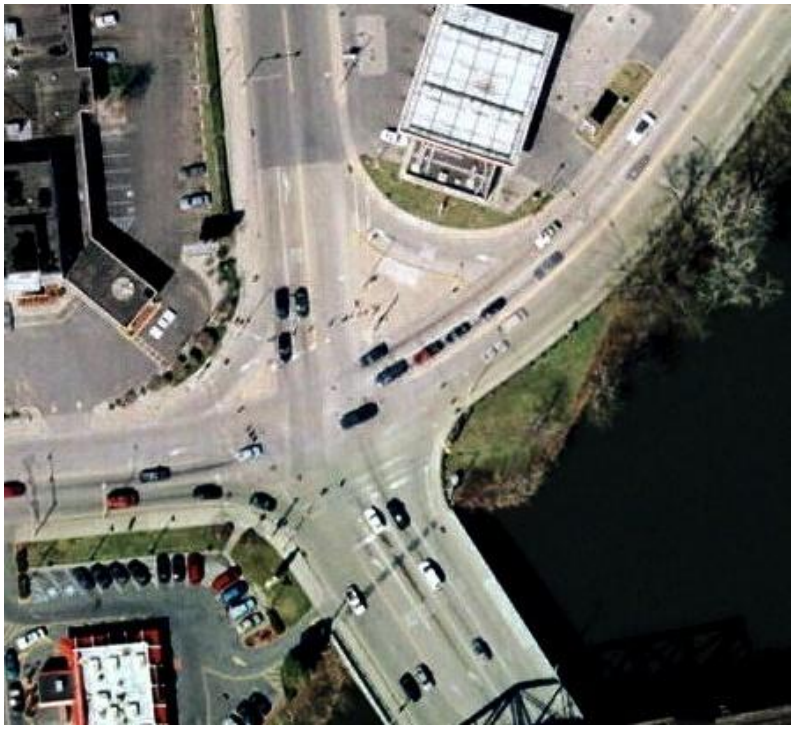

Figure 21 - Aerial photograph of intersection of S. Third Street and Larry Holmes Drive (Excerpt from Orthophotoquad 506710.tif file from City of Easton GIS files)

It is easy to see that this intersection was designed for motor vehicles, not pedestrians. It has been observed that:

> Street and neighborhood design and the condition of roads are aspects of the physical environment that can cause or create the conditions for a pedestrian crash to occur. Studies show that automobile speeds and street design are the most significant physical environment risk factors for pedestrians. Design practices over the past fifty years have favored arterials that are wide and straight. These types of roads are now understood to contribute to speeding and diminish the safety of pedestrians. San Diego Pedestrian Master Plan Report, 3.0 issues and Possible Solutions, p. 3-10.

> Pedestrian safety can be improved when both drivers and pedestrians understand each other's right of way, when both pay greater attention to their actions and when the most appropriate improvements are matched with the existing setting. San Diego Pedestrian Master Plan Report, 3.0 issues and Possible Solutions, p. 3-12.

It is apparent that the design of this intersection is utterly insensitive to the needs of pedestrians. The plight of a pedestrian attempting to cross this wide (six lanes) and unforgiving intersection is illustrated below:

Figure 22 - Intersection of South Third Street and Larry Holmes Drive

The daunting complexity of the intersection is further illustrated:

Figure 23 - Intersection of South Third Street and Larry Holmes Drive (two views)

There are other problems of detail at this intersection, including a mismatch between the pedestrian crosswalk and the curb ramps near the Exxon station (they simply do not line up) and the visually bare and unattractive island depicted in Figure 23. In addition, the wide "driveways" through the Exxon station have no vehicle lane markings and poor directional markings. The city should consider requesting the owner of the property to place planters or other visually attractive markers to guide traffic in and out of the station and to mitigate the appearance of a vast expanse of asphalt.

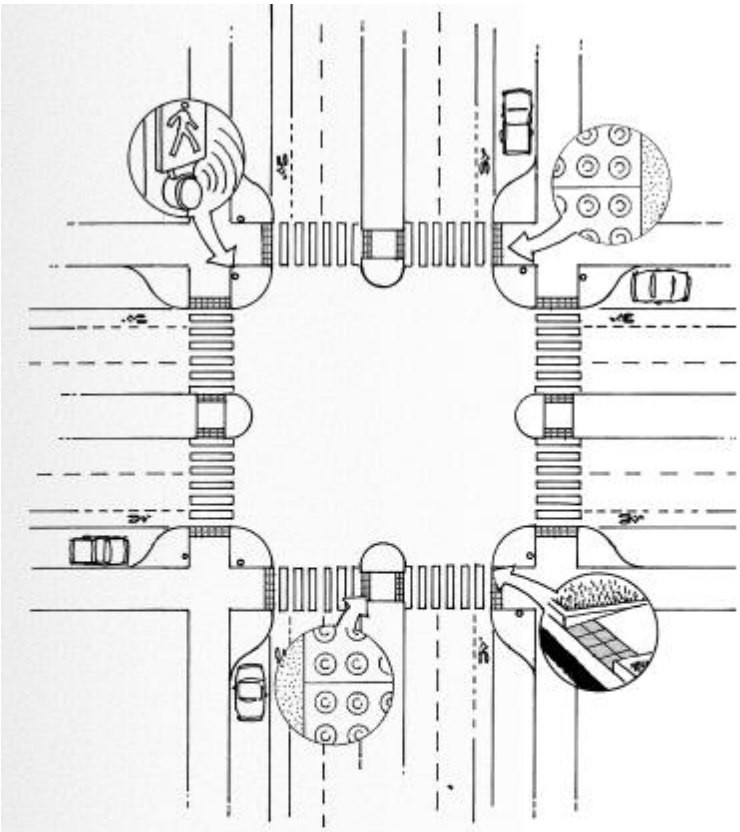

Figure 8-3. *GOOD DESIGN: At wide intersections, pedestrian access can be enhanced through a variety of features including ladder marking of crosswalks, perpendicular curb ramps, curb extensions with landscaping, detectable warnings, medians, and accessible pedestrian signals.*

In contrast with the current design of the South Third Street/Holmes Drive intersection, note the intersection design at the left (labeled Figure 8-3) and identified as a good design in the FHWA design manual, Chapter 8, Pedestrian Crossings.

We understand that the City is currently engaged in a planning process to modify Larry Holmes Drive to reduce its width and to make other modifications which will mitigate its effect as a pedestrian barrier between the downtown and the riverfront. We welcome these efforts. We also understand that this current planning phase does not include proposed modifications to this intersection. We recommend that future phases of planning in this area specifically address the complex and pedestrian-unfriendly characteristics of this intersection. These include but are not limited to the excessive crossing length, the absence of clearly marked pedestrian crossings and pedestrian refuges, the absence of standard pedestrian-crossing signalization to accompany the controls and the absence of any pedestrian amenities such as benches or public art. [13]

[13] We take note of the May 7, 2009 presentation and report of the Lafayette College engineering class [IDENTIFY CLASS] setting forth a proposal for waterfront improvements near and in this intersection, which proposed a

There are various potential intersection redesigns which would make the intersection more pedestrian-friendly. One such design approach (suggested by William Dohe, AIA) is depicted below. It would narrow travel lanes, provide pedestrian-crossing refuges, protect pedestrians from potential vehicle impacts with bollards, and provide areas of landscaping.

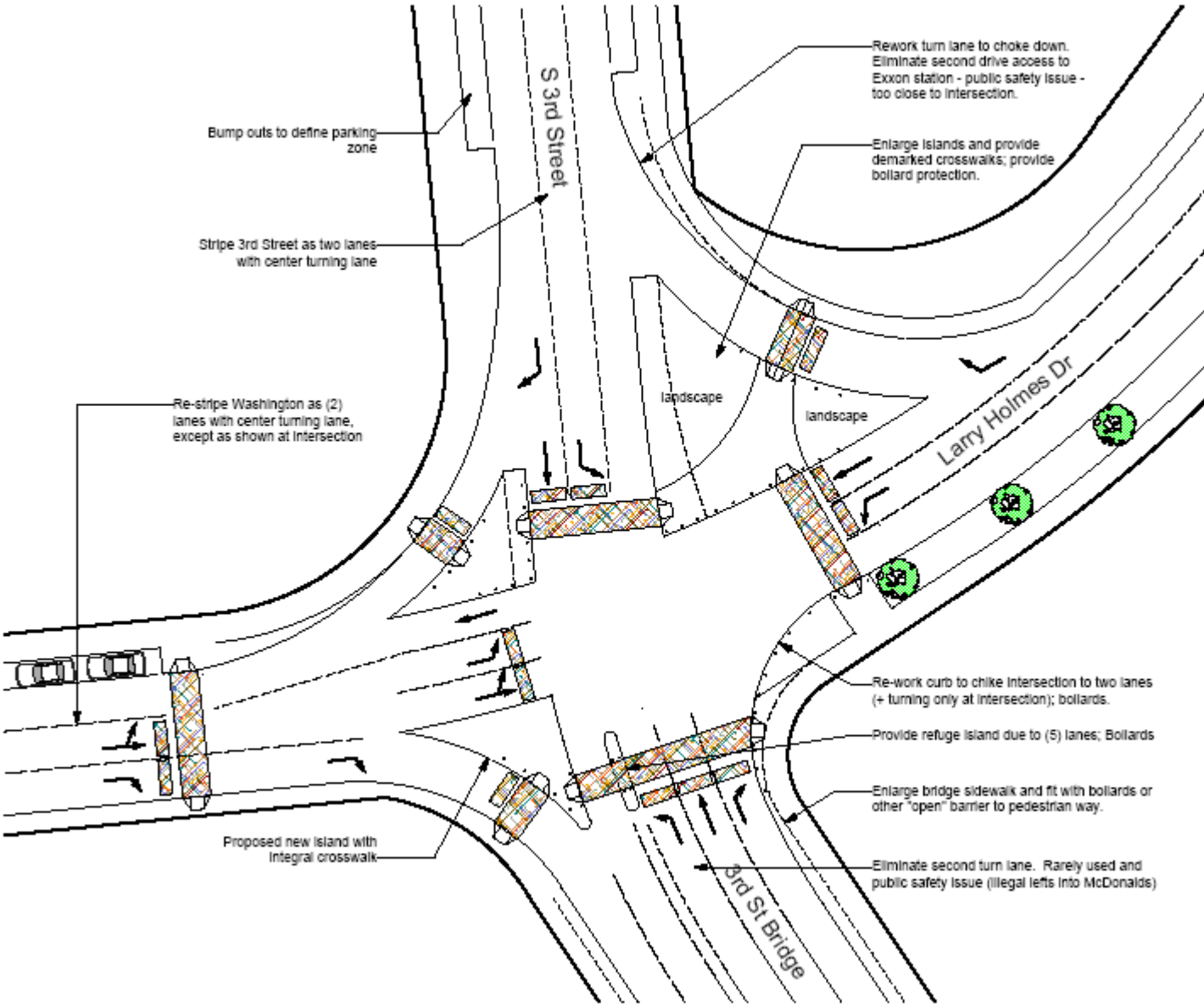

Figure 24: Example of possible redesign of Third St. and Larry Holmes Drive (W. Dohe)

"rotary" or "roundabout" in this intersection. We believe there is merit in this design concept which warrants further evaluation by the City.

Observations and Recommendations on the Lehigh River Trail/Multi-Use Path

At the intersection of Larry Holmes Drive and South Third Street, the Lehigh River Trail multi-use path on the east side of the bridge/intersection follows the sidewalk across the Third Street Bridge over the Lehigh River. From personal experience with groups of inexperienced cyclists, there have been many bicycle accidents with potential for the rider to fall off the path (which runs along a sidewalk with a very high curb height) onto the roadway where traffic is counterflow and moving at 35 mph. We recommend the installation of a three-foot high barrier between this path and the roadway. Intersection barriers are common in Hong Kong and other cities to discourage jaywalking where curb heights are high and traffic speeds may be high. The length of this barrier should extend from the boat ramp at the pumping station on Larry Holmes Drive, across the South Third Street bridge, and along Route 611 to the billboards where the path converges with the river trail. Please note that the barrier could be broken at the intersection for use of the crosswalks. We also observed that the trail's multi-use path in this area is too narrow for two-way traffic. If there are plans to perform construction in this area, the city should consider widening the trail's multi-use path to eight feet (the recommended width for multi-use trails).

VI. CONCLUSION

We believe that paying additional attention to the details of the pedestrian experience in the Third Street Corridor - -as in other areas of the Downtown business district – will yield significant benefits to the City, its residents and visitors. The recommendations contained in this report are a mix of low-cost measures and ambitious vision. We offer the report and its recommendations mindful of the financial challenges to the City and the current difficult economic climate. The measures recommended in the report will take their place along other demands for funding and priority of action. However, we are convinced that how people and visitors experience the details of walking in a significant street corridor shapes their fundamental perception of the City. We welcome further dialogue about the recommendations and issues of prioritization and funding.

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APPENDICES

Appendix A

List of Participants

The participants in the Third Street corridor study were EAC Transportation Affinity Circle members Mr. Charles Elliott (Chairman), Mr. Scott Slingerland, P.E., Mr. Matthew Munsey, Mr. Troy Reynard, Ms. Kim Kmetz, and Mr. Alan Raisman. Participants walked the study corridor on Friday, March 6, 2009 and Wednesday, April 29, 2009, and made visual observations. William Dohe, AIA, EAC Chairman, provided the illustrative map of the corridor and the graphic for a proposed redesign of the intersections of Third Street and Bushkill Street and Third Street and Larry Holmes Drive.

Appendix B

Photography Sources

Street-level digital photography used in this report was taken by Charles Elliott on March 6, April 8, and April 12, 2009 and by Alan Raisman on April 29, 2009. In addition, still photography was acquired from PennDOT's online State Highway Video Inventory ("iVIDLOG"), accessible at: http:// www.dot7.state.pa.us/ividlog/video_locate.asp

Aerial photography used in this report includes: (1) United States Geological Survey (USGS) Digital Orthophoto Quad[14] available from the City of Easton Department of Planning geographic information system and (2) aerial photography available from Google Map and Google Earth, including 2009 PAMAP data from the Pa. Department of Natural Resources, with street data layer overlays.

[14] The USGS Digital Orthophoto Quad data are a blend of aerial photography and georeferenced maps. The major source is the National Aerial Photography Program (NAPP). Data used for this report are in a georeferenced GeoTIFF format. The USGS DOQ's come in 3.75-minute blocks, the equivalent of a quarter quad.

Table of Figures

DISCLAIMER

This report, and the underlying study it represents, is not intended by the participants or by the Easton Environmental Advisory Council to be relied upon as the exclusive basis for any decision making by the City of Easton. The study and the report collectively constitute an undertaking by non-professional volunteers. The EAC and the participants in the study recommend that the City obtain appropriate reviews by licensed or certified professionals prior to undertaking any specific action or implementing any recommendation herein. In particular, with respect to matters or recommendations involving safety matters, nothing in this report shall be construed as an applicable standard of care or a position that the City of Easton or any other governmental body owes a duty of care to third persons.