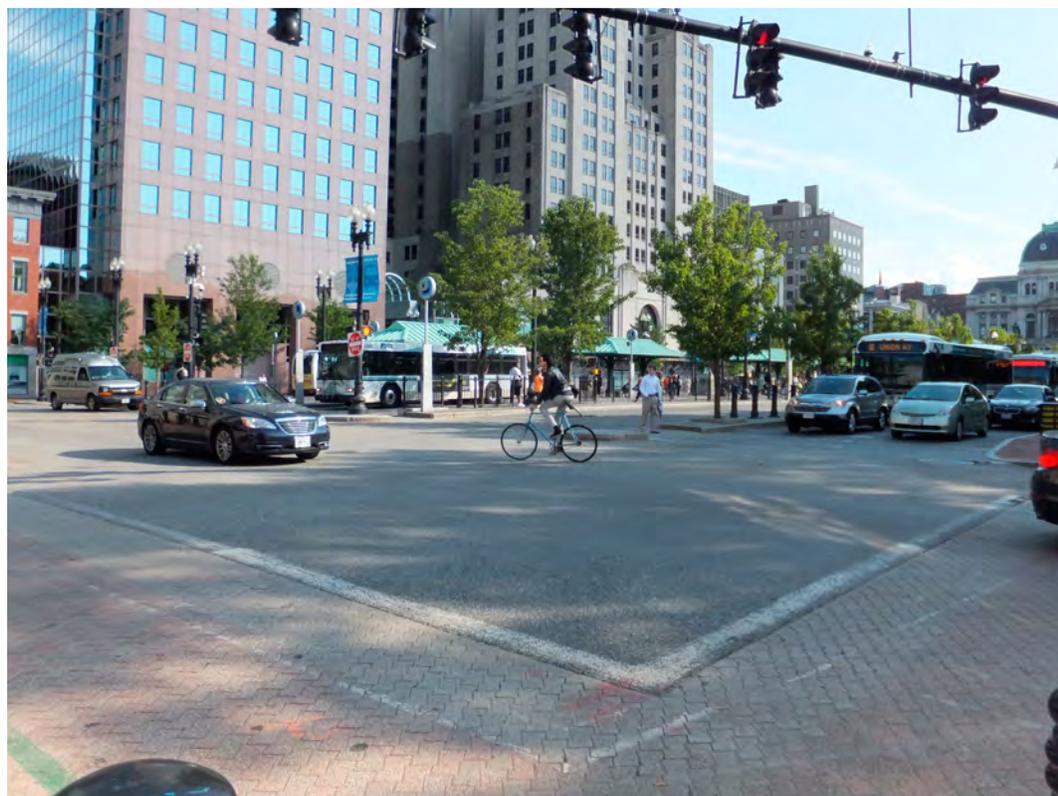


Kennedy Plaza Pedestrian Road Safety Assessment

Providence, RI | June 20, 2014



RSA TEAM PARTICIPANTS

Rhode Island Department of Transportation

Federal Highway Administration

City of Providence



Rhode Island Public Transit Authority

Rhode Island Statewide Planning Program

City of Providence Police Department

U.S. General Service Administration



U.S. Marshals Office

U.S. District Court

Rhode Island Attorney General

Vanasse Hangen Brustlin, Inc.



Kennedy Plaza – Pedestrian Road Safety Assessment

Prepared for Rhode Island Department of Transportation
City of Providence, Rhode Island

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October 2014

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Executive Summary



Kennedy Plaza is the major transit hub located in Downtown Providence. The plaza and surrounding street network is a busy and vibrant urban environment where people drive, walk, take the bus, and bike to the various shops, restaurants, and jobs. As with many congested urban transit centers, the confluence of vehicles, buses, pedestrians, and bicyclists creates inevitable conflict points. At Kennedy Plaza, there have been over 20 reported pedestrian-vehicle related collisions within the last four years, including one fatality in 2014 involving a federal employee who was struck by a bus while crossing the street.



In response to the latest series of pedestrian collisions and the recent fatality, the Rhode Island Department of Transportation (RIDOT), elected officials, city officials, and other stakeholders convened to collaboratively discuss pedestrian safety at the plaza. At that meeting, RIDOT offered to perform a Pedestrian Roadway Safety Assessment (RSA) in conjunction with a multidisciplinary team comprised of safety engineers, traffic engineers, highway engineers, local enforcement, adjacent stakeholders, and commerce association members. The objective of the Pedestrian RSA at Kennedy Plaza was to identify issues and potential near and longer term solutions focusing on pedestrian safety. This report presents a summary of the RSA process and the mitigation measures specific to Kennedy Plaza identified by the RSA team.



RSAs are a formal safety performance audit by an independent team. A Pedestrian RSA provides an opportunity to incorporate safety measures with a focus on pedestrians into near-term improvements as well as longer-term improvements in future projects. This RSA process followed federal guidelines for conducting a road safety assessment.¹

The following overarching issues were observed by the assessment team:



- **Kennedy Plaza circulation:** The Kennedy Plaza environment is oriented more to vehicles and buses compared to pedestrians. The wide open lanes for buses and vehicles coupled with limited signage/pavement markings create many conflict points between vehicles, buses, and pedestrians.
- **Pedestrians-Related Issues:** Many pedestrians do not cross in the designated crosswalks. Many of the sidewalks are not compliant with current Americans with Disabilities Act (ADA) standards. Pedestrian signal heads and push button equipment are not consistent. The orientation of the push buttons on the signal poles is not uniform.
- **Signage/ADA compliance:** There are areas where signage, pavement markings, and curb ramps are missing, faded, inconsistent, or not compliant with the current published standards in the Manual on Uniform Traffic Control Devices (MUTCD) or ADA.

¹ Federal Highway Administration, *Road Safety Audit Guidelines, Report No. FHWA-SA-06-06*, Washington, DC, 2006.

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- ▶ **Vehicle circulation:** The segment of Exchange Street between Washington Street and Fulton Street is confusing to drivers. It is perceived as a general purpose two-way roadway segment when it is actually restricted to buses only. There are many unauthorized drivers using this segment which is difficult to enforce because the pavement markings and signs are not clear.

To address these issues, the assessment team identified a total of 76 immediate, near, and long term recommendations. Several recommendations are universal and apply to the entire study area. Other recommendations are location specific and intended to address an issue identified by the team. All 76 recommendations are summarized in Table 2 and Figure 4 (immediate-term recommendations are depicted in green, near-term recommendations are shown in blue, and long-term recommendations are shaded yellow). Chapter 3 provides a detailed description of each recommendation and the issue that is addressed. Table 2 presents an “Implementation Matrix” which identifies the responsible parties for each recommendation.

Ultimately, since the roadways and signals at Kennedy Plaza fall under the jurisdiction of the City of Providence, the city is responsible for the implementation of many of the recommendations in partnership with RIDOT and RIPTA. The implementation of recommendations is contingent on available funding and post-construction conditions at Kennedy Plaza. Per MAP-21 legislation (Moving Ahead for Progress in the 21st Century Act), the RIDOT is responsible for the reduction of fatalities and serious injuries on all public roadways, regardless of ownership. Therefore, the RIDOT has the potential to provide partial or full funding for several of the improvements identified in this report.

1 – Introduction

1.1 Study Objective/Study Area

The objective of this project was to perform a Pedestrian Road Safety Assessment (RSA) at Kennedy Plaza. The primary outcome of the RSA was the identification of near and long-term actions needed to address any identified safety issues or deficiencies. The RSA was conducted on June 20th, 2014 where the assessment team convened to discuss issues and review existing and proposed conditions at Kennedy Plaza.

Figure 1 depicts the study area which included:

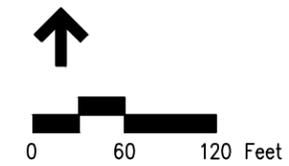
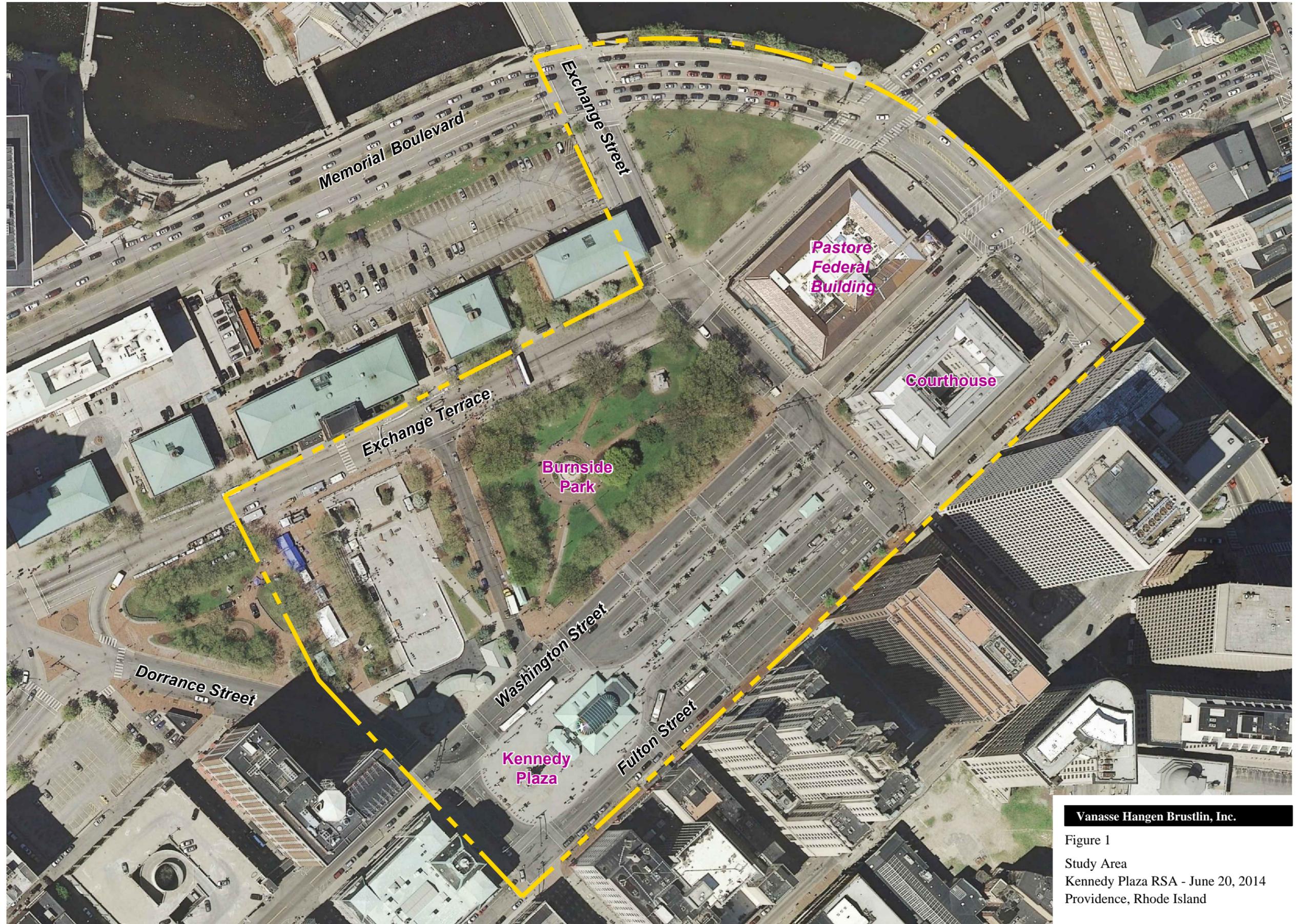
- Kennedy Plaza;
- Exchange Street, from Memorial Boulevard to Fulton Street;
- Washington Street, Dorrance Street to Memorial Boulevard;
- Fulton Street, Exchange Street to Dorrance Street; and
- Exchange Terrace, from Exchange Street to Dorrance Street.



The traffic circulation surrounding Kennedy Plaza is a combination of one and two-way streets with several vehicle restrictions. Washington Street, which runs along the north of the plaza, is one-way eastbound with two general purpose lanes through Kennedy Plaza. Fulton Street is a two-way roadway between Memorial Boulevard and Exchange Street which transitions to a bus only roadway in the westbound direction for the section between Exchange Street and Dorrance Street. Exchange Street between Fulton Street and Exchange Terrace is two-way travel however, southbound travel is restricted to buses only and northbound is restricted to buses only between Fulton Street and Washington Street.

Legend

 Study Area



Vanasse Hangen Brustlin, Inc.
Figure 1
Study Area
Kennedy Plaza RSA - June 20, 2014
Providence, Rhode Island

1.2 Road Safety Assessment Overview



This Kennedy Plaza assessment followed federal guidelines for conducting a Pedestrian RSA. The Federal Highway Administration (FHWA) defines RSAs as:

“A formal safety performance evaluation of an existing or future road or intersection by an independent, multidisciplinary team”.

RSAs are a valuable tool for transportation agencies to evaluate road safety and efficiency issues and to identify opportunities for improvement. RSAs are also an effective tool for proactively improving roadway and roadside safety for all road users, motorized and non-motorized. RSAs also help identify and mitigate localized, reoccurring congestion along segments of a roadway and at intersections. As such, the RSA process may be employed on any type of facility and during any stage of the project development process, including system planning, project development and design, construction, and on existing facilities open to traffic. The success of RSAs has led to the FHWA including the RSA process as one of its “Nine Proven Crash Countermeasures”.

Some element of safety is considered on every project. However, sometimes conditions merit a more detailed safety review. RSAs examine these conditions in detail by pulling together a multidisciplinary team to review the issues from different perspectives – perspectives which are often not a part of a traditional safety review.

RSAs also consider safety from a human factors point of view which aims to answer the following questions:

- How and why are people reacting to the roadway conditions?
- What do people sense and how do they react to those senses?
- What are the associated risks with those elements?

The multidisciplinary team approach helps to answer these questions. Interactions between all road users (e.g., pedestrians and motor vehicles, commuter traffic and recreational vehicle traffic, bicycles and motor vehicles, etc.) are investigated to determine potential risk and to identify programs and measures to help reduce those risks and create safer environments for all road users.

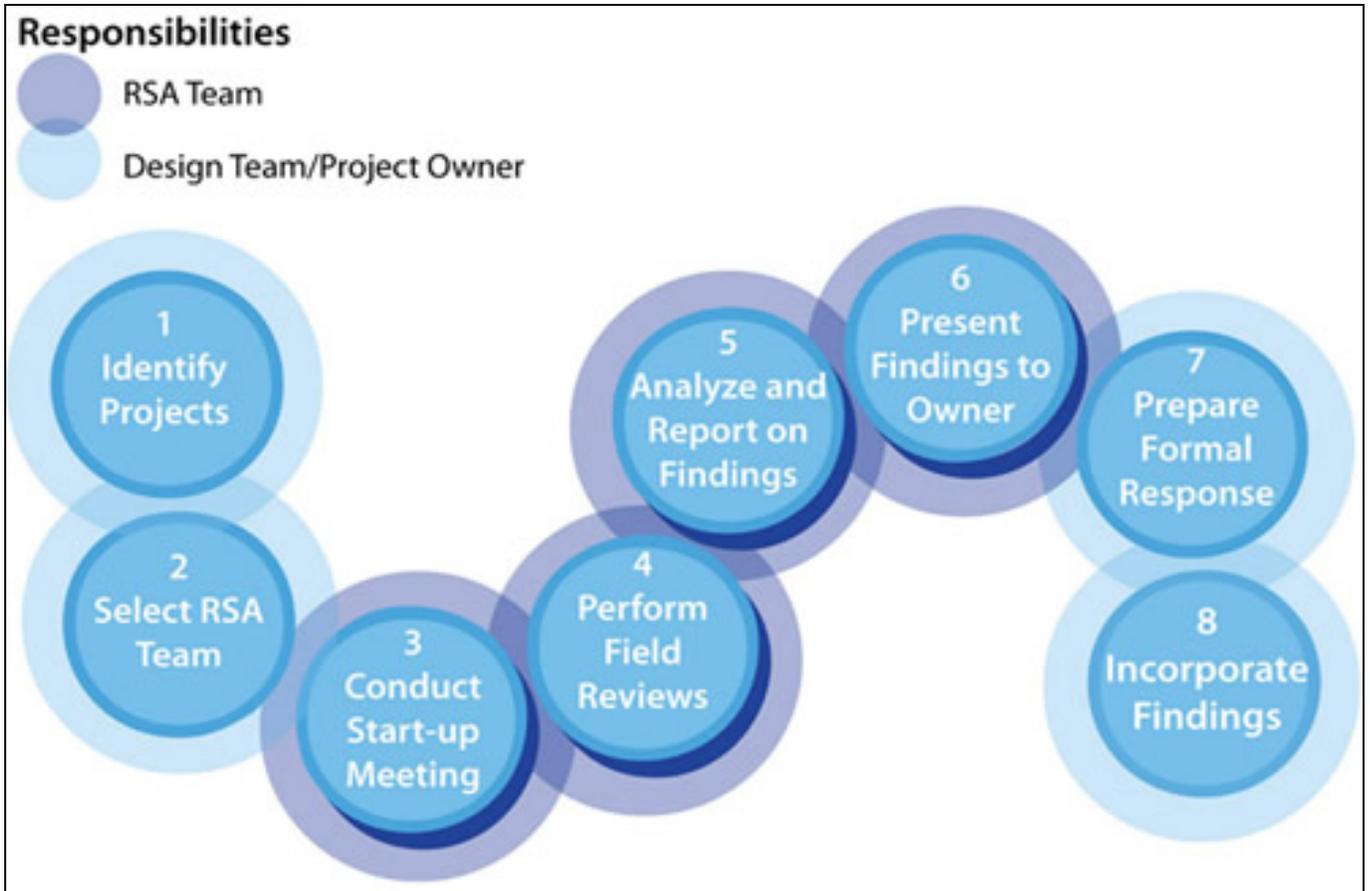
RSAs typically follows a formal 8 step process, as listed below and illustrated in Figure 2.

1. Identify RSA project (design-stage) or existing road (in-service).
2. Select an independent, multi-disciplinary RSA team.
3. Conduct a start-up meeting to review project information and drawings.
4. Perform field reviews in various conditions.
5. Conduct the RSA analysis and prepare preliminary findings presentation.
6. Present preliminary RSA findings to project owner/design team.

Kennedy Plaza Pedestrian Road Safety Assessment

7. Prepare formal response.
8. Incorporate findings into the project when appropriate.

Figure 2 RSA 8 Step Process



Source: [FHWA](#)

Additional information about RSAs, including resources, training opportunities, and contacts can be found on the FHWA website: <http://safety.fhwa.dot.gov/rsa/>.

1.3 RSA Interdisciplinary Team

The interdisciplinary assessment team for the Kennedy Plaza Pedestrian RSA consisted of engineers, planners, police, and area stakeholders. VHB facilitated the day-long effort. Representatives were present from:

- Rhode Island Department of Transportation
- Federal Highway Administration
- City of Providence
- Rhode Island Public Transit Authority
- Rhode Island Statewide Planning Program
- City of Providence Police Department
- U.S. General Services Administration
- U.S. Marshals Office
- U.S. District Court
- Rhode Island Attorney General



2 - Relevant Data Review

To help the assessment team identify existing issues and constraints as well as potential issues, relevant infrastructure projects and pedestrian crash data were reviewed.

2.1 Downtown Providence Traffic Circulation – Phase 3

Phase 3 of the Downtown Providence Traffic Circulation project is intended to improve mobility and circulation for vehicles while improving the overall pedestrian experience through shorter high-visibility crossings, traffic calming and the removal of existing channelizing islands for vehicles. The project area includes LaSalle Square (including portions of Broadway, Sabin Street, Empire Street, and Greene Street), Fountain Street between Empire Street and Dorrance Street, Emmett Square (including portions of Fountain Street, Francis Street, Dorrance Street, and Exchange Terrace), Kennedy Plaza (including portions of Washington Street, Exchange Street, Dorrance Street, and Fulton Street), and Exchange Terrace.

Construction of the project began with a groundbreaking ceremony on July 15, 2014 and is expected to be completed by November 2015. The following improvements within the Kennedy Plaza RSA focus area are currently included in the Downtown Circulation Phase 3 construction plans:

- ▶ Filling in of the inner bus berths at Kennedy Plaza to create larger public space with trees and seating areas;
- ▶ Consolidation of bus berths and relocation of several bus berths from Kennedy Plaza to East Approach, Exchange Terrace, and Exchange Street;
- ▶ Conversion of Exchange Terrace to two-way traffic between Francis Street and Exchange Street;
- ▶ Installation of curb bumpouts (if funding exists) and high visibility signs and markings at crosswalk at the Rhode Island Foundation building on Exchange Terrace;
- ▶ Conversion of Dorrance Street to two-way traffic between Fountain Street and Washington Street;
- ▶ Repaving for bus berth lanes at Kennedy Plaza and on East Approach; and

Kennedy Plaza Pedestrian Road Safety Assessment

- Installation of high visibility crosswalk markings at intersection of Exchange Terrace and Exchange Street.

2.2 Pedestrian Crash Data Review

Reported crash data for the assessment area was provided by RIDOT for the period between January 2009 and June 2014. The assessment team reviewed this reported crash data to identify any trends and help inform the RSA focus areas.

From January 2009 to June 2014, there were over 200 crashes in the study area. Of these, over 85 crashes resulted in personal injury, including a recent fatality involving a pedestrian crossing at the Washington Street intersection with Exchange Street. Of the 85 injury crashes, 62 involved vehicles only and 23 crashes involved a vehicle with a pedestrian or bicyclist. The majority of the 62 vehicle-only injury crashes occurred along Memorial Boulevard between Exchange Street and Washington Street. Within Kennedy Plaza, there were approximately 10 reported injury crashes.

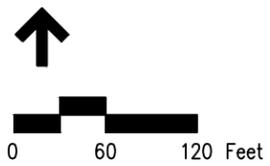
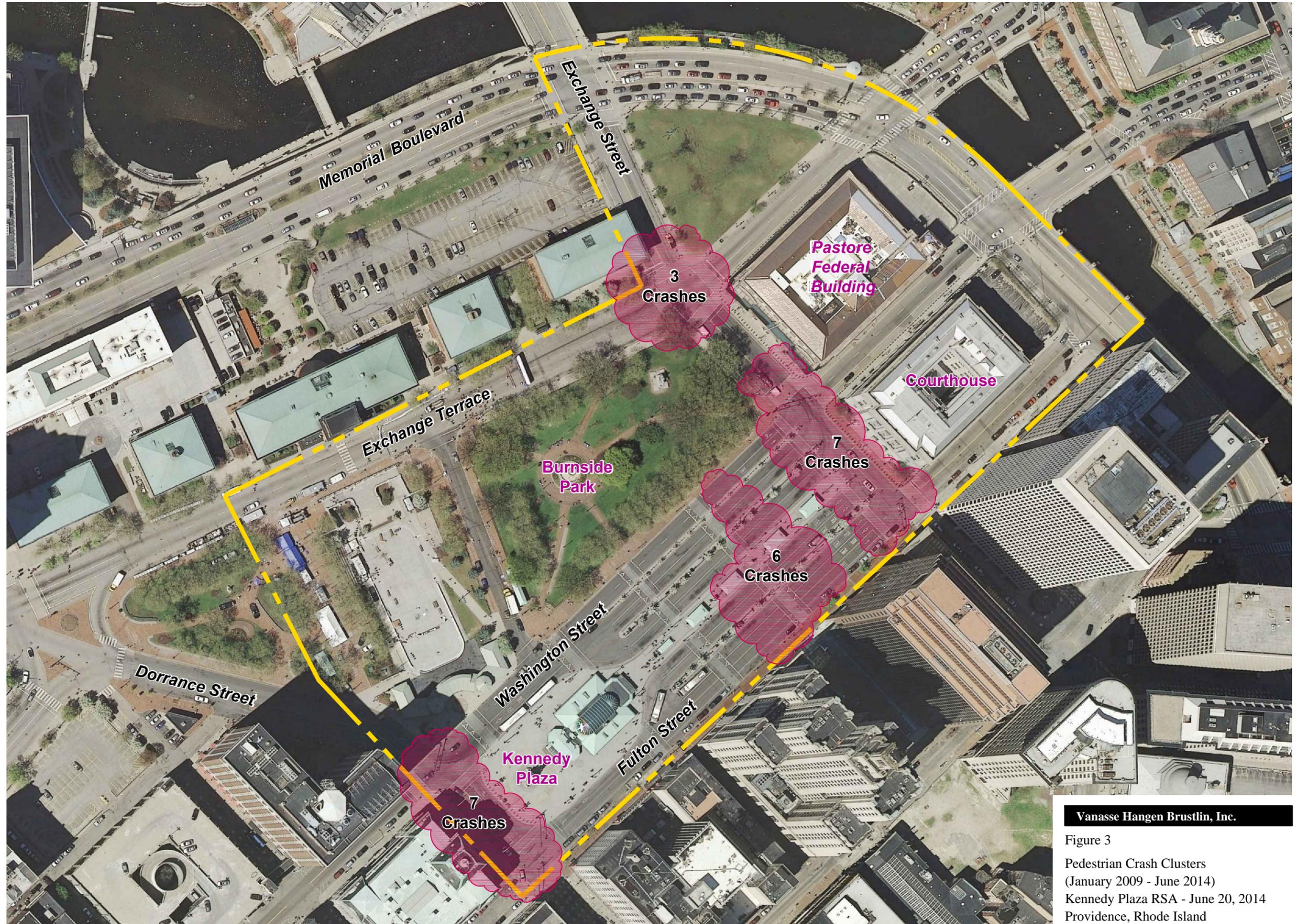
Focusing on crashes involving pedestrians, Figure 3 presents “clusters” of pedestrian crashes in the RSA study area. As shown in Figure 3, the majority of pedestrian related injury crashes occur along the edges where Kennedy Plaza interfaces with Dorrance Street and Exchange Street. In addition, 3 pedestrian crashes occurred at the unsignalized intersection of Exchange Street at Exchange Terrace.

Trends identified from the detailed crash reports involving pedestrians or bicyclists indicated:

- There is a combination of pedestrians being struck while in marked crosswalks as well as crossing outside a marked crosswalk (jaywalking);
- 21 percent of the crashes occurred during nighttime lighting conditions; and
- 35 percent of the crashes occurred when pavement conditions were wet.

Legend

Study Area



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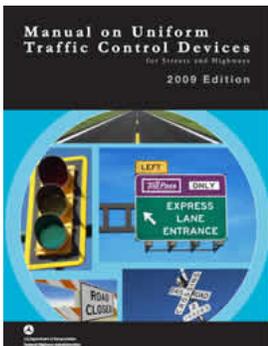
Figure 3
Pedestrian Crash Clusters
(January 2009 - June 2014)
Kennedy Plaza RSA - June 20, 2014
Providence, Rhode Island

3 – Assessment Findings & Recommendations

During the site condition review, the assessment team noted potential safety and operational issues (e.g., conflicts and congestion) throughout Kennedy Plaza. The following section summarizes the findings of the assessment and the assessment team’s recommendations for mitigation.

3.1 Identified Safety and Efficiency Issues and Recommendations for Improvement

The assessment team identified several safety and efficiency issues and opportunities within the study area. The existing safety and efficiency issues and suggestions are summarized in Table 1. The recommended improvements are categorizing into immediate-term, near-term, and longer-term implementation timeframes, and are differentiated between engineering, enforcement, and education/encouragement for the recommended countermeasures. Figure 4 summarizes the recommendations.



The recommended improvements provided in Table 1 are not an exhaustive list. Further studies on urban development, urban planning, and traffic engineering are needed. It is expected that as traffic and pedestrian patterns change in the near term when the construction at Kennedy Plaza is complete, several of the recommendations may need to be reassessed. The implementation of many of the recommendations contained in Table 1 is contingent on available funding and post-construction conditions at Kennedy Plaza.

3.1.1 Manual on Uniform Traffic Control Devices (MUTCD) Compliance

As part of the suggested improvements for this assessment, it is recommended that all work being performed comply with all standards from the latest version of the MUTCD. The MUTCD “shall be recognized as a national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel.” It is critical for the road user to have a seamless journey and notice no differences across the multiple agencies and jurisdictions.

Legend

- Study Area
- x-x Immediate Term Options
- x-x Near Term Options
- x-x Long Term Options

Area-Wide Findings

Education/Enforcement:

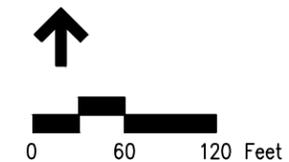
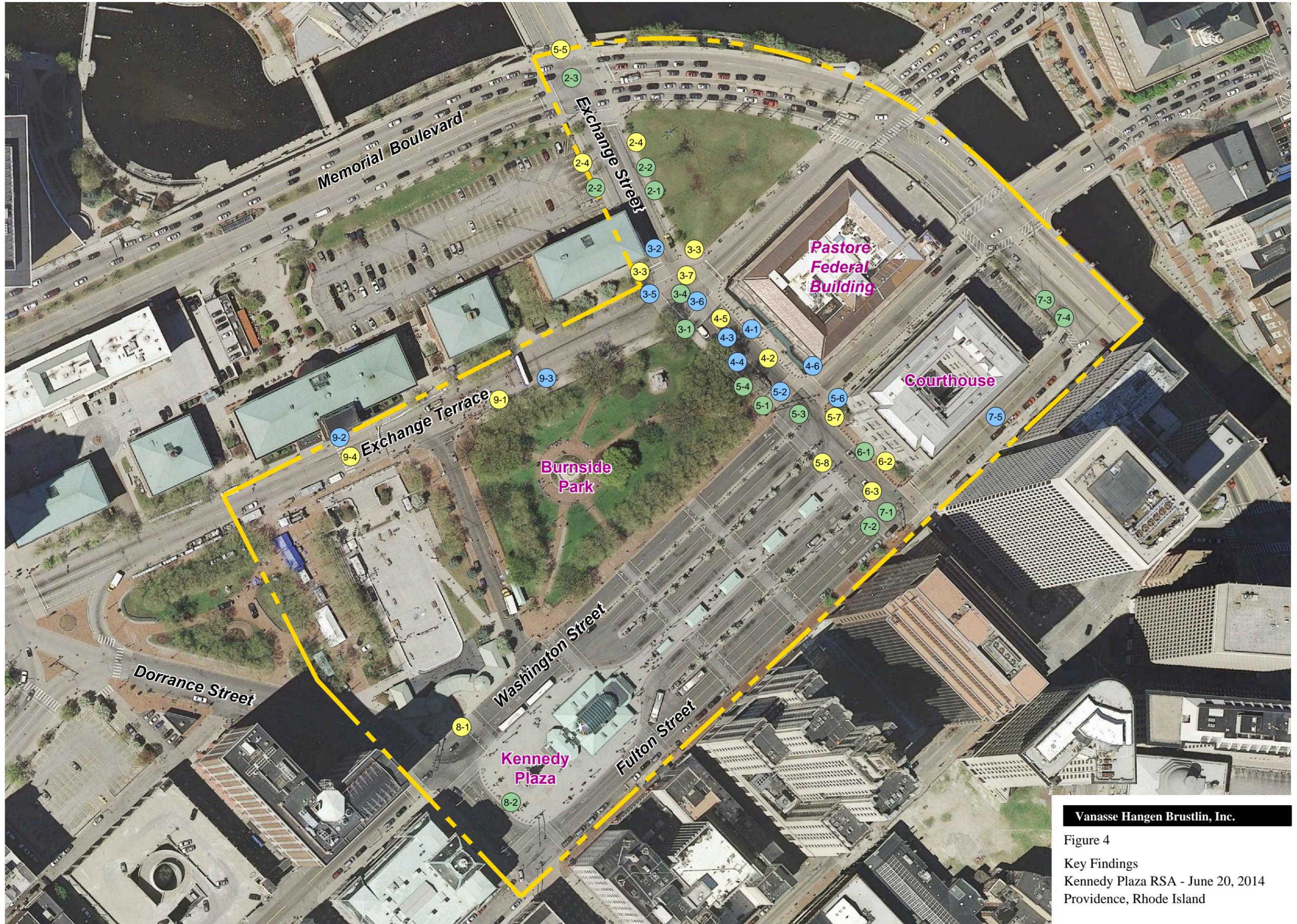
- Initiate safety and awareness education campaigns
- Additional enforcement (drivers and pedestrians)
- Conduct a formal speed study; reduce speed limits where possible

Signs/Pavement Markings/Signals:

- Standardize all crosswalk pavement markings
- Field check and update pedestrian push buttons; provide countdown timers
- Implement gateway treatments
- Provide "YIELD TO PEDESTRIANS IN CROSSWALK" signs
- Enhance visibility of "PEDESTRIAN CROSSING" signs
- Add reflectorized backplates to traffic signals
- Conduct sign audit and sign update
- Install "Bus Lane Only" signs and pavement markings

Pedestrians:

- Evaluate landscape elements to channelize pedestrians
- Implement traffic calming strategies
- Retime the traffic signals with more walk time or constant pedestrian phases
- Install bump-outs where feasible



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 Figure 4
 Key Findings
 Kennedy Plaza RSA - June 20, 2014
 Providence, Rhode Island

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
1.0 Area Wide				
<p>Kennedy Plaza environment is oriented more to vehicles and buses compared to pedestrians; many conflict points exist between vehicles, buses, and pedestrians</p> 	<p>EDUCATION: 1-1. Implement education campaigns illustrating actions the City is taking to improve pedestrian safety; show where pedestrians should cross and inform them of the state law; emphasize state law that drivers must yield to pedestrians in crosswalks (including when turning at an intersection)</p> <p>EDUCATION: 1-2. Consider educational campaigns to raise safety awareness for pedestrians and drivers, such as:</p> <ul style="list-style-type: none"> • Flyers posted in local businesses • On-board messages (audible and visual) in the buses; and • Public service announcements (radio, television, internet) <p>ENFORCEMENT: 1-3. Consider targeted enforcement (verbal warnings only) of pedestrians (current efforts focus on drivers)</p> <p>1-4. Continued RIPTA bus driver education and enforcement</p> <p>1-5. Increase enforcement (speeding, unauthorized vehicles in bus-only lanes, prohibited turning maneuvers)</p>	<p>ENGINEERING: 1-6. Increase driver awareness that they are entering a pedestrian environment through gateway treatments such as in lane markings and speed limits signs</p> <p>1-7. Consider constant pedestrian phase calls at signals (i.e. automatic activation on every cycle) pending further study on traffic operations</p> <p>1-8. Install additional pedestrian-scale lighting</p>		<p>Partially addressed by the Kennedy Plaza Improvements to be constructed under the Downtown Traffic Circulation Phase 3 project</p> <p>Recent transit signal priority (TSP) improvements implemented by RIPTA at Kennedy Plaza traffic signals could help mitigate red light running</p>
<p>General confusion for pedestrians and motorists; wide open lanes for buses and vehicles without adequate signage or pavement markings</p>	<p>ENGINEERING: 1-9. Provide "YIELD TO PEDESTRIANS IN CROSSWALK" warning signs at marked unsignalized crosswalks where possible</p>	<p>ENGINEERING: 1-10. Enhance visibility of "PEDESTRIAN CROSSING" signs in the median by relocating signs or tree maintenance</p> <p>1-11. Install "TURNING VEHICLES YIELD TO PEDESTRIANS" signs</p>	<p>ENGINEERING: 1-13. Standardize all crosswalk treatments throughout Kennedy Plaza and adjacent intersections (e.g. highly visible crossings); provide detectable warning panels at curb transitions</p>	<p>Partially addressed by Downtown Traffic Circulation Phase 3 Improvements</p>

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
		<p>1-12. Install “BUS LANE ONLY” signs and corresponding “BUS ONLY” pavement markings where appropriate</p>		
<p>Pedestrians not using crosswalks or using push buttons</p>	<p>EDUCATION: 1-14. Consider more detailed safety education information at bus stops and/or on buses</p> <p>ENFORCEMENT: 1-15. Consider additional enforcement of jaywalking</p> <p>ENGINEERING: 1-16. Consider installing flag stands at signals</p>	<p>1-17. Repair any inoperable push buttons and provide adequate pedestrian crossing time</p> <p>1-18. Provide new pedestrian signal equipment at all signalized intersections in the area</p>	<p>ENGINEERING: 1-19. Consider appropriate landscape elements to help channelize pedestrians toward crossings (benches or raised planters) around Kennedy Plaza to compliment the landscaping throughout Kennedy Plaza proposed under Downtown Traffic Circulation Phase 3</p>	<p>Partially addressed by Downtown Traffic Circulation Phase 3 Improvements</p>
<p>Lack of visibility of traffic signals; solar glare issues occur at times</p> 		<p>ENGINEERING: 1-20. Investigate the feasibility of adding reflectorized backplates to traffic signals to improve visibility during day and night</p>		<p>Need to assess whether the cantilevered signal poles can accommodate the backplates</p>

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
<p>Pedestrian push-button signs are not consistent or oriented correctly</p> 	<p>ENGINEERING: 1-21. Field check pedestrian push button orientation</p>	<p>ENGINEERING: 1-22. Update all pedestrian push buttons, adjust placement/orientation and provide countdown timers</p> 		<p>Partially addressed by Downtown Traffic Circulation Phase 3 Improvements</p>
<p>Guide/regulatory/warning signs are small, inconsistent, unclear, obstructed, or missing</p>	<p>ENGINEERING: 1-23. Consider a comprehensive sign audit to verify sign height, retro-reflectivity, current sign standards, consistency, redundancy, and unnecessary signs 1-24. Remove any obsolete or misleading signage</p>	<p>ENGINEERING: 1-25. Where feasible, place overhead lane use signs on mast arms</p>	<p>ENGINEERING: 1-26. Implement area-wide signage update to compliment the Kennedy Plaza sign upgrades from Downtown Traffic Circulation Phase 3</p>	<p>Partially addressed by Downtown Traffic Circulation Phase 3 Improvements</p>
<p>Vehicles travel at high speeds considering the high volume of pedestrians in the area</p>	<p>ENFORCEMENT: 1-27. Initiate and fund a program that provides strict enforcement and education by the Police Department ENGINEERING: 1-28. Conduct a formal speed study</p>	<p>ENGINEERING: 1-29. If possible, reduce speed limits in and around Kennedy Plaza and add new speed limit signs if warranted based on speed study</p>	<p>ENGINEERING: 1-30. Conduct feasibility study for installation of traffic calming strategies for both cars and busses (e.g. curb extensions, raised crosswalks, intersections, etc. where feasible)</p>	<p>Coordinate feasibility of traffic calming strategies with Fire Department, DPW, and RIPTA</p>

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
<p>Food trucks along Washington Street can cause pedestrian queues encroaching into the roadway</p> 		<p>ENGINEERING: 1-31. Evaluate moving the vendors to the plaza side of the street once the reconstruction is complete</p>	<p>ENGINEERING: 1-32. If warranted, consider appropriate landscape elements along Washington Street north of Kennedy Plaza (such as bollards) to prevent pedestrian queues into the roadway and mitigate midblock crossing</p>	
<p>Deteriorated and rutting pavement surface throughout Kennedy Plaza</p>				<p>Addressed by Downtown Traffic Circulation Phase 3 Improvements</p>
<p>Relatively short signal timing for pedestrians</p>		<p>ENGINEERING: 1-33. Retime the traffic signals to provide more walk time for all users in accordance with current requirements from the Manual on Uniform Traffic Control Devices (MUTCD)</p>	<p>ENGINEERING: 1-34. Investigate installing bump-outs at pedestrian crossings/intersections where feasible. This provides visual narrowing of the roadway and when signs are placed in the bump-outs, they increase awareness of pedestrians which may modify driver behavior</p>	<p>Signal timing adjustments addressed by Downtown Traffic Circulation Phase 3 Improvements</p>
<p>2.0 Exchange Street - Memorial Boulevard to Exchange Terrace</p>				
<p>Narrow sidewalks exist on both sides of Exchange Street; trees on the sidewalk limit width and have low hanging branches</p> <p>Trip hazards are prevalent on the sidewalk due to uneven surfaces and planter grates</p>	<p>ENGINEERING: 2-1. Maintain trees to gain as much clearance as possible without harming the tree</p>			

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
	<p>2-2. Prioritize snow clearance on sidewalks along this segment of Exchange Street due to the uneven walking surface and to prevent pedestrians from walking in the street</p> <p>2-3. Evaluate the intersection of Memorial Boulevard/Exchange Terrace for opportunities to improve signal operations and pedestrian conditions</p>		<p>ENGINEERING: 2-4. Reconstruct and widen sidewalk on both sides of Exchange Street; encourage widened sidewalk to be integral to the potential development of the adjacent parcel</p>	<p>Sidewalk widening may require a land acquisition/easement</p>
<p>3.0 Exchange Street at Exchange Terrace Intersection</p>				
<p>Exchange Street southbound as a 2 lane roadway encourages dual right-turns and unauthorized through movements at the Exchange Terrace intersection, causing pedestrian conflicts and driver confusion</p>	<p>ENGINEERING: 3-1. Upgrade "DO NOT ENTER" signs; add BUS ONLY pavement markings</p>	<p>ENGINEERING: 3-2. Evaluate the feasibility of restriping the Exchange Street southbound approach to Exchange Terrace as one-lane</p>		
<p>Wide intersection is difficult to cross for pedestrians; crosswalk across Exchange Terrace is lengthy</p>			<p>ENGINEERING: 3-3. Construct curb extensions to complement expanded sidewalk (with 2-4)</p>	
<p>Confusing and lack of signing to convey permitted traffic movements</p> 	<p>ENGINEERING: 3-4. Upgrade signs at the intersection to be compliant with MUTCD standards and to more effectively convey the permitted movements</p>	<p>ENGINEERING: 3-5. Consider adding arrow pavement markings showing the permitted movements because the signs are not always visible and can be obscured by the adjacent trees</p> <p>3-6. Remove lower priority signs to reduce clutter and increase conspicuity of more important regulatory and lane use signs</p>		

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
<p>Intersection control is not consistent with adjacent intersections, creating confusion</p>			<p>ENGINEERING: 3-7. Evaluate intersection for potential signal control if warranted once traffic volumes have shifted from the Downtown Traffic Circulation Phase 3 project</p>	
4.0 Exchange Street - Exchange Terrace to Washington Street				
<p>Illegal drop-off and parking occurs in front of the Federal Building</p> 		<p>ENFORCEMENT: 4-1. Prohibit vehicles from parking</p>	<p>ENGINEERING: 4-2. Evaluate widening sidewalk in front of Federal Building</p>	<p>Consider option to either retain security bollards in current location or reposition bollards with sidewalk widening</p>
<p>Pavement markings (double yellow centerline) suggest that the roadway is open to general traffic southbound when it is bus only</p>		<p>ENGINEERING: 4-3. Add BUS ONLY pavement markings and enhanced signs 4-4. Evaluate the cross-section options associated with providing a left-turn only lane from Exchange Street to Washington Street or a bike lane along the Exchange Street curblane; if implemented, reassess operations after 6 months</p>	<p>ENGINEERING: 4-5. Evaluate options for enhanced pavement treatment for southbound bus lane</p>	

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
<p>Bollards obstruct crosswalks and curb ramps</p> 		<p>ENGINEERING: 4-6. Review bollard placement at ramps to ensure curb ramps meet minimum widths without compromising security or safety</p>		<p>Coordinate bollard placement and potential for changes with GSA</p>
5.0 Exchange Street at Washington Street Intersection				
<p>Southbound left-turn bus maneuver is difficult due to opposing through traffic</p>	<p>ENGINEERING: 5-1. Evaluate feasibility and impacts of providing lead green signal interval for buses making left-turn</p>	<p>ENGINEERING: 5-2. Evaluate the impacts to RIPTA from prohibiting southbound left-turns from Exchange Street to Washington Street</p>		
<p>Relatively short WALK time across Exchange Street</p>	<p>ENGINEERING: 5-3. Retime the traffic signal to provide more walk time for all users in accordance with current MUTCD requirements; retain the curb extension that is proposed to be eliminated under the Kennedy Plaza Reconstruction</p>			<p>Signal timing adjustments addressed by Downtown Traffic Circulation Phase 3 Improvements</p> <p>Coordinate desire to retain curb extension with City of Providence</p>
<p>High frequency, varying directions, and multiple points of bus maneuvers exiting Kennedy Plaza</p> <p>Enhance the connectivity between Kennedy Plaza and Providence Station for bus patrons</p>	<p>ENGINEERING: 5-4. Identify options to relocate one (or both) of the bus berths on Exchange Street across from the Federal Building</p>		<p>ENGINEERING: 5-5. Evaluate Providence Station as a bus hub to augment Kennedy Plaza</p>	<p>Some bus maneuvers will be reduced as part of the Downtown Traffic Circulation Phase 3 Improvements</p>

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
<p>Confusing geometry on Washington Street and problematic intersection skew resulting from inner-most bus berth area on Washington Street</p>				<p>Addressed by Downtown Traffic Circulation Phase 3 Improvements where the inner-most berth is removed; the berth immediately south of Washington Street would remain</p>
<p>Bollards obstruct crosswalks and curb ramps</p> 		<p>ENGINEERING: 5-6. Review bollard placement at ramps to ensure curb ramps meet minimum widths</p>	<p>ENGINEERING: 5-7. Consider installing bump-outs at pedestrian crossings/intersections. This provides visual narrowing of the roadway and when signs are placed in the bump-outs, they increase awareness of pedestrians which may modify driver behavior</p>	<p>Coordinate bollard placement and potential for removal with GSA for security</p>
<p>Complicated traffic circulation pattern in front of the Federal Building and Courthouse</p>			<p>ENGINEERING: 5-8. Conduct a traffic flow engineering study of opportunities to simplify traffic circulation in the area</p>	<p>Partially addressed by Downtown Traffic Circulation Phase 3 Improvements; coordinate circulation changes with City of Providence, Fire Department, and RIPTA</p>
6.0 Exchange Street - Washington Street to Fulton Street				
<p>Illegal drop-off and parking occurs in front of the Federal Building and Courthouse</p>	<p>ENFORCEMENT: 6-1. Prohibit vehicles from parking</p>		<p>ENGINEERING: 6-2. Evaluate widening sidewalk in front of the Federal Building and Courthouse</p>	<p>Consider option to either retain security bollards in current location or reposition with sidewalk widening</p>

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
Signal timing is coordinated east-west, northbound Exchange Street has long delay			ENGINEERING: 6-3. Evaluate signal timing and phasing once Kennedy Plaza reconstruction is complete	Signal timing adjustments are being implemented as part of Downtown Traffic Circulation Phase 3 Improvements
Long pedestrian crossing across Kennedy Plaza bus bays and vehicle lanes				Addressed by Downtown Traffic Circulation Phase 3 Improvements through bus bay consolidation
7.0 Exchange Street at Fulton Street Intersection				
<p>Missing "NO LEFT TURN" sign on Fulton Street eastbound; frequent illegal left-turns</p> 	<p>ENGINEERING: 7-1. Replace missing "NO LEFT TURN" sign on mast arm</p> <p>ENFORCEMENT: 7-2. Ticket vehicles making a left-turn</p>			
<p>Use of Fulton Street westbound by general traffic from Memorial Boulevard; "NO RIGHT TURN" sign on Memorial Boulevard at Fulton Street is obscured/not visible and not adhered to; westbound drivers on Fulton Street are faced with a "dead end" with no legal maneuver approaching Exchange Street</p> 	<p>ENGINEERING: 7-3. Replace with more visible sign positioned away from the fence and adjacent landscaping</p> <p>ENFORCEMENT: 7-4. Ticket unauthorized vehicles making a right-turn from Memorial Boulevard to Fulton Street</p>	<p>ENGINEERING: 7-5. Evaluate potential for one-way flow on Fulton Street between Exchange Street and Memorial Boulevard</p>		

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
8.0 Dorrance Street - Washington Street to Fulton Street				
<p>Crosswalk across Washington Street at Kennedy Plaza is far from the intersection and creates pedestrian/vehicle conflicts; crosswalk does not align with desire line and looks like an unsignalized midblock crossing</p> 			<p>ENGINEERING: 8-1. Evaluate options to shift the crosswalk closer to Dorrance Street (review curb radius and potential for apex curb ramps)</p>	<p>Review vehicle turning radii with RIPTA and City of Providence</p>
<p>Vehicles parking on the pedestrian plaza</p> 	<p>ENFORCEMENT: 8-2. Ticket unauthorized vehicles parking on the plaza</p>			

Table 1 Kennedy Plaza RSA Mitigation Measures

OBSERVATION	IMMEDIATE TERM OPTIONS Under 6 months	NEAR TERM OPTIONS Under 2 years	LONGER TERM OPTIONS Over 2 years	COMMENTS
9.0 Exchange Terrace - Exchange Street to Dorrance Street				
High vehicle speeds due to one-way traffic flow			ENGINEERING: 9-1. Implement 2-way traffic flow on Exchange Terrace; consider opportunity for additional bus berths with 2-way flow	Addressed by Downtown Traffic Circulation Phase 3 Improvements through conversion to two-way circulation
<p>Excessively wide crosswalk in front of The Rhode Island Foundation</p> 		<p>ENGINEERING: 9-2. Restripe crosswalk; reduce width of the crosswalk</p> <p>ENGINEERING: 9-3. Consider lane width reduction with striped chokers</p>	ENGINEERING: 9-4. Install curb extensions to reduce crossing width	

4 - Conclusions

The objective of this project was to perform a Pedestrian Road Safety Assessment at Kennedy Plaza in Providence, Rhode Island. The assessment team reviewed the different modes of transportation (pedestrians, bicycles, buses, taxis, shuttles, autos, etc.) that interact at Kennedy Plaza and evaluated safety issues across these modes collectively.

The assessment team first reviewed data and relevant projects including pedestrian crash data and the plans for Phase 3 of the Downtown Providence Traffic Circulation project which is currently under construction. The team then reviewed safety and operations of Kennedy Plaza in the field. The key overarching issues identified by the RSA were as follows:

- ▶ **Kennedy Plaza circulation:** The Kennedy Plaza environment is oriented more to vehicles and buses compared to pedestrians. The wide open lanes for buses and vehicles coupled with limited signage/pavement markings create many conflict points between vehicles, buses, and pedestrians.
- ▶ **Pedestrians-Related Issues:** Many pedestrians do not cross in the designated crosswalks. Many of the sidewalks are not compliant with current Americans with Disabilities Act (ADA) standards. Pedestrian signal heads and push button equipment are not consistent. The orientation of the push buttons on the signal poles is not uniform.
- ▶ **Signage/ADA compliance:** There are areas where signage, pavement markings, and curb ramps are missing, faded, inconsistent, or not compliant with the current published standards in the Manual on Uniform Traffic Control Devices (MUTCD) or ADA.
- ▶ **Vehicle circulation:** The segment of Exchange Street between Washington Street and Fulton Street is confusing to drivers. It is perceived as a general purpose two-way roadway segment when it is actually restricted to buses only. There are many unauthorized drivers using this segment which is difficult to enforce because the pavement markings and signs are not clear.

Once the field review was complete and the range of issues were identified, the assessment team identified 76 immediate, near and long-term mitigation measures which included education, enforcement, and engineering countermeasures as summarized previously in Table 1.

5 - Next Steps

All 76 recommendations from this Pedestrian RSA have been reviewed and vetted by the assessment team. Tables 2 through 4 present the implementation plan for the RSA recommendations, including the timeframe in which each recommendation could reasonably be implemented and actions needed to address and implement each recommendation. In addition, Tables 2 through 4 identify who is responsible for each recommendation (City vs. RIDOT vs. RIPTA).

As noted in Section 3.1, the recommended improvements in Tables 2 through 4 are not an exhaustive list. It is expected that as traffic and pedestrian patterns change in the near term when the ongoing construction at Kennedy Plaza is complete, several of the recommendations may need to be reassessed. Ultimately, since the roadways and signals at Kennedy Plaza fall under the jurisdiction of the City of Providence, the city is responsible for the implementation of many of the recommendations. The implementation of recommendations is contingent on available funding and post-construction conditions at Kennedy Plaza. Per MAP-21 legislation, the RIDOT is responsible for the reduction of fatalities and serious injuries on all public roadways, regardless of ownership. Therefore, the RIDOT has the potential to provide partial or full funding for several of the improvements identified in this report.

Kennedy Plaza Pedestrian Road Safety Assessment

Table 2 Implementation Matrix – City of Providence

Mitigation Measures – City of Providence	Timeframe			Status
	Immediate Term	Near Term	Long Term	
1.0 Area Wide Measures				
1-1. Implement education campaigns illustrating actions the City is taking to improve pedestrian safety; show where pedestrians should cross and inform them of the state law; emphasize state law that drivers must yield to pedestrians in crosswalks (including when turning at an intersection)	X			Seek potential funding opportunities through RIDOT Office of Highway Safety
1-2. Consider educational campaigns to raise safety awareness for pedestrians and drivers (flyers, on-board messages, public service announcements)	X			With RIDOT and RIPTA Seek potential funding opportunities through RIDOT Office of Highway Safety
1-3. Consider targeted enforcement (verbal warnings only) of pedestrians (current efforts focus on drivers)	X			Enforcement issue
1-5. Increase enforcement (speeding, unauthorized vehicles in bus-only lanes, prohibited turning maneuvers)	X			Enforcement issue
1-6. Increase driver awareness that they are entering a pedestrian environment through gateway treatments such as in lane markings and speed limits signs		X		Seek potential funding opportunities through RIDOT Office of Highway Safety
1-7. Consider constant pedestrian phase calls at signals (i.e. automatic activation on every cycle)		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard)
1-8. Install additional pedestrian-scale lighting		X		Partially addressed by the Kennedy Plaza Improvements
1-9. Provide "YIELD TO PEDESTRIANS IN CROSSWALK" warning signs at marked unsignalized crosswalks where possible	X			Partially addressed by the Kennedy Plaza Improvements
1-10. Enhance visibility of "PEDESTRIAN CROSSING" signs in the median by relocating signs or tree maintenance		X		Partially addressed by the Kennedy Plaza Improvements
1-11. Install "TURNING VEHICLES YIELD TO PEDESTRIANS" signs		X		
1-12. Install "BUS LANE ONLY" signs and corresponding "BUS ONLY" pavement markings where appropriate		X		
1-13. Standardize all crosswalk treatments throughout Kennedy Plaza and adjacent intersections (e.g. highly visible crossings); provide detectable warning pads at curb transitions			X	Partially addressed by the Kennedy Plaza Improvements Seek potential funding opportunities through RIDOT Office of Highway Safety
1-15. Consider additional enforcement of jaywalking	X			Enforcement issue
1-16. Consider installing flag stands at signals	X			
1-17. Repair any inoperable push buttons and provide adequate pedestrian crossing time		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard)

Kennedy Plaza Pedestrian Road Safety Assessment

Table 2 Implementation Matrix – City of Providence

Mitigation Measures – City of Providence	Timeframe			Status
	Immediate Term	Near Term	Long Term	
1-18. Provide new pedestrian signal equipment at all signalized intersections in the area		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard)
1-19. Consider appropriate landscape elements to help channelize pedestrians toward crossings (benches or raised planters) around Kennedy Plaza to compliment the landscaping throughout Kennedy Plaza proposed under Downtown Traffic Circulation Phase 3			X	Partially addressed by the Kennedy Plaza Improvements
1-20. Investigate the feasibility of adding reflectorized backplates to traffic signals to improve visibility during day and night		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard) Need to assess whether the cantilevered signal poles can accommodate the backplates
1-21. Field check pedestrian push button orientation	X			Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard) Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-22. Update all pedestrian push buttons, adjust placement/orientation and provide countdown timers		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard) Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-23. Consider a comprehensive sign audit to verify sign height, retro-reflectivity, current sign standards, consistency, redundancy, and unnecessary signs	X			Focus on City controlled locations (RIDOT responsible for Memorial Boulevard) Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-24. Remove any obsolete or misleading signage	X			Focus on City controlled locations (RIDOT responsible for Memorial Boulevard) Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-25. Where feasible, place overhead lane use signs on mast arms		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard)
1-26. Implement area-wide signage update to compliment the Kennedy Plaza sign upgrades from Downtown Traffic Circulation Phase 3			X	Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard)
1-27. Initiate and fund a program that provides strict enforcement and education by the Police Department	X			Seek potential funding opportunities through RIDOT Office of Highway Safety

Kennedy Plaza Pedestrian Road Safety Assessment

Table 2 Implementation Matrix – City of Providence

Mitigation Measures – City of Providence	Timeframe			Status
	Immediate Term	Near Term	Long Term	
1-28. Conduct a formal speed study	X			Seek potential funding opportunities through RIDOT Office of Highway Safety
1-29. If possible, reduce speed limits in and around Kennedy Plaza and add new speed limit signs if warranted based on speed study		X		Speed study needed in advance of any speed limit reductions (see 1-29)
1-30. Conduct feasibility study for installation of traffic calming strategies for both cars and busses (e.g. curb extensions, raised crosswalks, intersections, etc. where feasible)			X	Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard) Seek potential funding opportunities through RIDOT Office of Highway Safety
1-31. Evaluate moving the vendors to the plaza side of the street once the reconstruction is complete		X		Consistent with the Kennedy Plaza Improvements
1-32. If warranted, consider appropriate landscape elements along Washington Street north of Kennedy Plaza (such as bollards) to prevent pedestrian queues into the roadway and mitigate midblock crossing			X	
1-33. Retime the traffic signals to provide more walk time for all users in accordance with current requirements from the Manual on Uniform Traffic Control Devices (MUTCD)		X		Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard) Signal timing adjustments addressed by Downtown Traffic Circulation Phase 3 Improvements
1-34. Investigate installing bump-outs at pedestrian crossings/intersections where feasible. This provides visual narrowing of the roadway and when signs are placed in the bump-outs			X	Focus on City controlled intersections (RIDOT responsible for Memorial Boulevard)
2.0 Exchange Street - Memorial Boulevard to Exchange Terrace				
2-1. Maintain trees to gain as much clearance as possible without harming the tree	X			
2-2. Prioritize snow clearance on sidewalks along this segment of Exchange Street due to the uneven walking surface and to prevent pedestrians from walking in the street	X			
2-4. Reconstruct and widen sidewalk on both sides of Exchange Street; encourage widened sidewalk to be integral to the potential development of the adjacent parcel			X	Sidewalk widening may require a land acquisition/easement
3.0 Exchange Street at Exchange Terrace Intersection				
3-1. Upgrade "DO NOT ENTER" signs; add BUS ONLY pavement markings	X			
3-2. Evaluate the feasibility of restriping the Exchange Street southbound approach to Exchange Terrace as one-lane		X		
3-3. Construct curb extensions to complement expanded sidewalk (refer to 2-4)			X	

Kennedy Plaza Pedestrian Road Safety Assessment

Table 2 Implementation Matrix – City of Providence

Mitigation Measures – City of Providence	Timeframe			Status
	Immediate Term	Near Term	Long Term	
3-4. Upgrade signs at the intersection to be compliant with MUTCD standards and to more effectively convey the permitted movements	X			
3-5. Consider adding arrow pavement markings showing the permitted movements because the signs are not always visible and can be obscured by the adjacent trees		X		
3-6. Remove lower priority signs to reduce clutter and increase conspicuity of more important regulatory and lane use signs		X		
3-7. Evaluate intersection for potential signal control if warranted once traffic volumes have shifted from the Downtown Traffic Circulation Phase 3 project			X	Signal warrant analysis required
4.0 Exchange Street - Exchange Terrace to Washington Street				
4-1. Prohibit vehicles from parking		X		Enforcement issue
4-2. Evaluate widening sidewalk in front of Federal Building			X	Consider option to either retain security bollards in current location or reposition bollards with sidewalk widening
4-3. Add BUS ONLY pavement markings and enhanced signs		X		
4-4. Evaluate the cross-section options associated with providing a left-turn only lane from Exchange Street to Washington Street or a bike lane along the Exchange Street curblane; if implemented, reassess operations after 6 months		X		
4-5. Evaluate options for enhanced pavement treatment for southbound bus lane			X	
4-6. Review bollard placement at ramps to ensure curb ramps meet minimum widths without compromising security or safety		X		
5.0 Exchange Street at Washington Street Intersection				
5-1. Evaluate feasibility and impacts of providing lead green signal interval for buses making left-turn	X			
5-2. Evaluate impacts to RIPTA from prohibiting southbound left-turns from Exchange Street to Washington Street		X		With RIPTA
5-3. Retime the traffic signal to provide more walk time for all users in accordance with current MUTCD requirements; retain the curb extension that is proposed to be eliminated under the Kennedy Plaza Reconstruction	X			Signal timing adjustments addressed by Downtown Traffic Circulation Phase 3 Improvements
5-4. Identify options to relocate one (or both) of the bus berths on Exchange Street across from the Federal Building	X			With RIPTA The two bus bays are presently relocated from the curb during construction
5-5. Evaluate Providence Station as a bus hub to augment Kennedy Plaza			X	With RIDOT and RIPTA

Kennedy Plaza Pedestrian Road Safety Assessment

Table 2 Implementation Matrix – City of Providence

Mitigation Measures – City of Providence	Timeframe			Status
	Immediate Term	Near Term	Long Term	
5-6. Review bollard placement at ramps to ensure curb ramps meet minimum widths		X		
5-7. Consider installing bump-outs at pedestrian crossings/intersections. This provides visual narrowing of the roadway and when signs are placed in the bump-outs, they increase awareness of pedestrians which may modify driver behavior			X	
5-8. Conduct a traffic flow engineering study of opportunities to simplify traffic circulation in the area			X	Conduct after traffic and pedestrian patterns to settle after Kennedy Plaza reconstruction is complete
6.0 Exchange Street - Washington Street to Fulton Street				
6-1. Prohibit vehicles from parking	X			Enforcement issue
6-2. Evaluate widening sidewalk in front of the Federal Building and Courthouse			X	
6-3. Evaluate signal timing and phasing once Kennedy Plaza reconstruction is complete			X	Signal timing adjustments are being implemented as part of Downtown Traffic Circulation Phase 3 Improvements
7.0 Exchange Street at Fulton Street Intersection				
7-1. Replace missing "NO LEFT TURN" sign on mast arm	X			
7-2. Ticket vehicles making a left-turn	X			Enforcement issue
7-3. Replace with more visible sign positioned away from the fence and adjacent landscaping	X			
7-4. Ticket unauthorized vehicles making a right-turn from Memorial Boulevard to Fulton Street	X			Enforcement issue
7-5. Evaluate potential for one-way flow on Fulton Street between Exchange Street and Memorial Boulevard		X		
8.0 Dorrance Street - Washington Street to Fulton Street				
8-1. Evaluate options to shift the crosswalk closer to Dorrance Street (review curb radius and potential for apex curb ramps)			X	Review vehicle turning radii with RIPTA and City of Providence
8-2. Ticket unauthorized vehicles parking on the plaza	X			Enforcement issue
9.0 Exchange Terrace - Exchange Street to Dorrance Street				
9-1. Implement 2-way traffic flow on Exchange Terrace; consider opportunity for additional bus berths with 2-way flow			X	
9-2. Restripe crosswalk; reduce width of the crosswalk		X		
9-3. Consider lane width reduction with striped chokers		X		
9-4. Install curb extensions to reduce crossing width			X	

Kennedy Plaza Pedestrian Road Safety Assessment

Table 3 Implementation Matrix – RIDOT

Mitigation Measures - RIDOT	Timeframe			Status
	Immediate Term	Near Term	Long Term	
1.0 Area Wide Measures				
1-2. Consider educational campaigns to raise safety awareness for pedestrians and drivers (flyers, on-board messages, public service announcements)	X			With City and RIPTA Seek potential funding opportunities through RIDOT Office of Highway Safety
1-17. Repair any inoperable push buttons and provide adequate pedestrian crossing time		X		RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection
1-18. Provide new pedestrian signal equipment at all signalized intersections in the area		X		RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection
1-20. Investigate the feasibility of adding reflectorized backplates to traffic signals to improve visibility during day and night		X		RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection Need to assess whether the cantilevered signal poles can accommodate the backplates
1-21. Field check pedestrian push button orientation	X			RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection
1-22. Update all pedestrian push buttons, adjust placement/orientation and provide countdown timers		X		RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-23. Consider a comprehensive sign audit to verify sign height, retro-reflectivity, current sign standards, consistency, redundancy, and unnecessary signs	X			Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-24. Remove any obsolete or misleading signage	X			Partially addressed by Downtown Traffic Circulation Phase 3 Improvements
1-25. Where feasible, place overhead lane use signs on mast arms		X		RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection
1-26. Implement area-wide signage update to compliment the Kennedy Plaza sign upgrades from Downtown Traffic Circulation Phase 3			X	RIDOT jurisdiction includes Memorial Boulevard
1-30. Conduct feasibility study for installation of traffic calming strategies for both cars and busses (e.g. curb extensions, raised crosswalks, intersections, etc. where feasible)			X	RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection
1-33. Retime the traffic signals to provide more walk time for all users in accordance with current requirements from the Manual on Uniform Traffic Control Devices (MUTCD)		X		RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection
1-34. Investigate installing bump-outs at pedestrian crossings/intersections where feasible. This provides visual narrowing of the roadway and when signs are placed in the bump-outs			X	RIDOT jurisdiction includes Memorial Boulevard/Exchange Terrace intersection

Kennedy Plaza Pedestrian Road Safety Assessment

Table 3 Implementation Matrix – RIDOT

Mitigation Measures - RIDOT	Timeframe			Status
	Immediate Term	Near Term	Long Term	
2.0 Exchange Street - Memorial Boulevard to Exchange Terrace				
2-3. Evaluate the intersection of Memorial Boulevard/Exchange Terrace for opportunities to improve signal operations and pedestrian conditions	X			
5.0 Exchange Street at Washington Street Intersection				
5-5. Evaluate Providence Station as a bus hub to augment Kennedy Plaza			X	With City and RIPTA

Kennedy Plaza Pedestrian Road Safety Assessment

Table 4 Implementation Matrix – RIPTA

Mitigation Measures - RIPTA	Timeframe			Status
	Immediate Term	Near Term	Long Term	
1.0 Area Wide Measures				
1-2. Consider educational campaigns to raise safety awareness for pedestrians and drivers (flyers, on-board messages, public service announcements)	X			With City and RIDOT Seek potential funding opportunities through RIDOT Office of Highway Safety
1-4. Continued RIPTA bus driver education and enforcement	X			
1-14. Consider more detailed safety education information at bus stops and/or on buses	X			
1-35. Evaluate Providence Station as a bus hub to augment Kennedy Plaza			X	With City and RIDOT
5.0 Exchange Street at Washington Street Intersection				
5-2. Evaluate impacts to RIPTA from prohibiting southbound left-turns from Exchange Street to Washington Street		X		With City
5-4. Identify options to relocate one (or both) of the bus berths on Exchange Street across from the Federal Building	X			With City The two bus bays are presently relocated from the curb during construction
5-5. Evaluate Providence Station as a bus hub to augment Kennedy Plaza			X	With City and RIDOT