

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DISTRICT DEPARTMENT OF TRANSPORTATION



INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

To: Said Cherifi,
Program Manager
IPMA – Team 2

From: Levon Petrosian,
Supervisory General Engineer
IPMA – Safety, Standards and
Data Analysis Division

Date: 9/16/2009

Subject: Traffic and Pedestrian Safety on Missouri Avenue, Kennedy Street between 1st Street and 3rd Street NW and at the intersection of Kansas, Missouri Avenues and Kennedy Street NW

This is our response to Cheeks James's request.

The IPMA Safety, Standards and Quality Control division received the request about increasing traffic and pedestrian safety. The SSQC division safety group together with a representative of IPMA Team 2, TPPA pedestrian program coordinator and Ward 4 planner visited the site: Missouri Avenue, Kennedy Street between 1st Street and 3rd Street NW and at the intersection of Kansas, Missouri Avenues and Kennedy Street NW, on Thursday, September 10, 2009.

General Comments:

Our observation of the site showed that the existing condition of the observed segment of Missouri Avenue and Kennedy Street between Kansas Avenue and 2nd Street does not accommodate southeast traffic flow in a safe manner.

To increase safety of the segment of Missouri Avenue and Kennedy Street between Kansas Avenue and 2nd Street, part of the existing median at Missouri Avenue must to be removed immediately to provide 21(ft.) width (10 ft. + 11ft. bus route) for two traffic lanes in southeast traffic direction. The length of the proposed reduced median should be 90 (ft.) measured from the intersection of Kansas and Missouri Avenues in eastbound direction. The traffic ramp located on Missouri Avenue and providing eastbound traffic for Kennedy

*Street throughout Missouri Avenue **must be closed immediately**. The Kennedy Street should become one-way street with westbound traffic between 2nd Street and Missouri Avenue. The real increase in safety of the mentioned segment of Missouri Avenue and Kennedy Street between 2nd Street and Kansas Avenue will be possible after **reconstruction (cut) of the median on Missouri Avenue and construction of a sidewalk through the existing traffic ramp on Missouri Avenue for eastbound traffic on Kennedy Street**. See Appendix Figure 3.*

Construction Notes - All construction should be executed in accordance with DDOT policies, standards and regulations.

For short term safety improvements SSQC safety team proposes the following recommendations for this site.

IPMA Team 2 traffic engineers working together with TOA Field Operation division engineers must improve the safety of the above mentioned intersections by refurbishing existing pavement marking, adding pedestrian crossing signs, traffic and parking operation signs (including installation of "Turning Vehicles Stop for Pedestrians" R10-15 sign), installing new gore pavement marking, new traffic guide lines throughout intersections and converting the part of Kennedy Street between 2nd Street and Missouri Avenue from a two-way to one-way.

The following is a summary of shop order requests:

Signalized Intersection of Missouri Avenue Kansas Avenue and Kennedy Street NW

1. Install "Keep Right" R4-7 sign in the nose of the median located on Missouri Avenue for eastbound traffic.
2. Install "Keep Right" R4-7 sign in the nose of the median located on Kansas Avenue for northbound traffic.
3. Lengthen the ped walk phase on Kennedy across Kansas Ave. to be concurrent with the full east/west Missouri Ave. green phase. The only conflict is with vehicles making a right turn off of EB Missouri onto SB Kansas.
4. Provide an approaching traffic lane on Missouri Avenue to the intersection of Missouri and Kansas Avenues in westbound traffic direction. All proposed pavement markings must be installed according to DDOT standards for turn or direct lanes approaching intersections.

5. Install regulatory "Speed Limit 25" R2-1 sign on Missouri Avenue between 3rd Street and Kansas Avenue in eastbound travel direction.
6. Add gore pavement marking on Missouri Avenue at the safety island in the approaching zone of the intersection of Kansas and Missouri Avenues to guide the right turn from Kansas Avenue to Missouri Avenue for eastbound traffic and eastbound traffic on Kennedy Street onto Missouri Avenue. The proposed gore pavement markings will serve several functions: protect the curb of the ramp, improve delineation of eastbound traffic from Kennedy Street, and protect the right turn from Kansas onto Missouri Avenues at the southeast side of Missouri Avenue.
7. Provide traffic lane designation pavement markings along Missouri Avenue between New Hampshire Avenue and Georgia Avenue for both traffic directions.
8. Replace "No Left Turn" R3-2P regulatory sign, installed at the southeast corner of the intersection of Missouri and Kansas Avenues, with "R3-2" image sign.
9. Repaint double yellow line on Missouri Avenue from Kansas Avenue to 1st Street where it is partially faded. Eliminate the gap in the double yellow lane in front of the traffic ramp located on Missouri Avenue.
10. The traffic and bicycle lanes, crosswalks and stop bars pavement markings on Kansas Avenue between Longfellow Street and 3rd Street for both traffic directions are in good condition.
11. Trim old tree branches located at the south side of Missouri Avenue east of the intersection of Kansas and Missouri Avenues, to improve visibility of oncoming motorists, pedestrians and vehicles making left turn to Kennedy Street in eastbound direction.
12. Replace "To New Hampshire Avenue, Northbound (with 45° angle Arrow)" green guide sign installed at the southeast corner of the intersection of Missouri and Kansas Avenues with "To New Hampshire Avenue, Northbound (with vertical arrow)".
13. Install "To New Hampshire Avenue, Northbound (with 45° angle Arrow)" green guide sign on Missouri Avenue between 1st Street and New Hampshire Avenue in eastbound traffic direction.
14. As a short term safety improvement, install flexible plastic polls (delineators) at the traffic ramp on Missouri Avenue to eliminate unsafe access for eastbound traffic on Kennedy Street through the ramp located on Missouri Avenue. East bound traffic from Kennedy Street, Missouri and Kansas Avenues will be diverted trough signalized intersections such as 2nd Street and Missouri Avenue, and New Hampshire and Missouri Avenues.

Signalized Intersection of Missouri Avenue and 2nd Street NW

1. The pavement at the intersection is in a very poor condition and **must be resurfaced**.
2. Add stop bar pavement markings on Missouri Avenue for both directions of the travel.
3. Move "Stop" R1-1 regulatory sign placed at the southeast corner of 2nd Street and Kennedy Street to the northeast corner of the same intersection. The current location of the "Stop" sign is too close to the signalized intersection of Missouri Avenue and 2nd Street. The "Stop" sign must be installed facing the westbound traffic on Kennedy Street.
4. Add stop bar pavement markings to an appropriate location on Kennedy Street for westbound direction of the travel.
5. Remove existing stop bar pavement marking on 2nd Street between Missouri Avenue and Kennedy Street in northbound traffic direction.
6. "Stop Ahead" W3-1 warning sign should be installed on Kennedy Street in an appropriate place between 1st Street and 2nd Street for the westbound traffic. (150 ft. is standard distance between existing regulatory stop sign R1-1 and warning "Stop Ahead" sign for posted speed limit of 25MPH).
7. "Stop Ahead" W3-1 warning sign should be installed on 2nd Street in an appropriate place between Longfellow Street and Kennedy Street for northbound traffic. (150 ft. is standard distance between existing regulatory stop sign R1-1 and warning "Stop Ahead" sign for posted speed limit of 25MPH).
8. Add W16-7p pointed arrow plaque at the existing W11-2 pedestrian crossing sign placed on Kennedy Street in westbound traffic direction.
9. Remove W11-2 pedestrian crossing warning sign from the south west corner of the intersection of Kennedy and 2nd Streets.
10. Install "Pedestrian Crosswalk Ahead" W11-2 non-vehicular traffic warning sign on Kennedy Street for westbound traffic. "Pedestrian Crosswalk" W11-2 sign must be installed 150 ft. before the "Pedestrian Crosswalk" W11-2 sign with pointed arrow W16-7p sign. (150 ft. is standard distance between warning signs for posted speed limit 25MPH).
11. Install two pedestrian crossing W11-2 signs with pointed arrow W16-7p plaques at the crosswalks on 2nd Street in northbound and southbound traffic directions.
12. Install "Pedestrian Crosswalk Ahead" W11-2 non-vehicular traffic warning sign on 2nd Street for southbound traffic. "Pedestrian Crosswalk" W11-2 sign must be installed 150 ft. before the "Pedestrian Crosswalk" W11-2 sign with pointed arrow W16-7p sign. (150 ft. is standard distance between warning signs for posted speed limit 25MPH).
13. Remove bent metallic bar placed at the northeast corner of Missouri and Kansas Avenues. This rod is in hazardous condition for pedestrians.

Non-signalized Intersection of Missouri Avenue 1st Street and Jefferson Street NW

1. Repaint the west side crosswalk pavement markings on Missouri Avenue at the intersection of Missouri Avenue and Jefferson Street. Provide the “leader” type of striping, curb face to curb face.
2. Install two pedestrian crossing W11-2 signs with pointed arrow W16-7p plaques at the crosswalks on Missouri Avenue of the intersection of Missouri Avenue and Jefferson Street in westbound and eastbound traffic directions.
3. Install “Pedestrian Crosswalk Ahead” W11-2 non-vehicular traffic warning sign on Missouri Avenue for eastbound traffic. “Pedestrian Crosswalk” W11-2 sign must be installed 150 ft. before the “Pedestrian Crosswalk” W11-2 sign with pointed arrow W16-7p sign. (150 ft. is standard distance between warning signs for posted speed limit 25MPH.
4. Repaint the east side crosswalk pavement markings on Missouri Avenue at the intersection of Missouri Avenue and First Street. Provide the “leader” type of striping, curb face to curb face.
5. Install two pedestrian crossing W11-2 signs with pointed arrow W16-7p plaques at the crosswalks on Missouri Avenue of the intersection of Missouri Avenue and First Street in westbound and eastbound traffic directions.
6. Install “Pedestrian Crosswalk Ahead” W11-2 non-vehicular traffic warning sign on Missouri Avenue for westbound traffic. “Pedestrian Crosswalk” W11-2 sign must be installed 150 ft. before the “Pedestrian Crosswalk” W11-2 sign with pointed arrow W16-7p sign. (150 ft. is standard distance between warning signs for posted speed limit 25MPH.
7. Install “Do Not Enter” sign at the southeast side of the intersection of Missouri Avenue and Jefferson Street turning the wrong way onto west bound traffic on Jefferson Street NE.
8. “Stop Ahead” W3-1 warning signs should be installed on Jefferson Street in an appropriate place between 1st Street and 2nd Street for eastbound traffic. (150 ft. is standard distance between existing regulatory stop sign R1-1 and warning “Stop Ahead” sign for posted speed limit of 25MPH).
9. Reinstall “One Way “ R6-2R sign placed at the electrical pole located on south side of Missouri Avenue close to the intersection of Jefferson Street, First Street and Missouri Avenue in eastbound traffic direction. The bottom of sign panel shall be a minimum of 7(ft.) above roadway

10. Repaint the stop bar pavement marking on First Street.
11. Consider allowing left turn from Missouri Avenue to New Hampshire Avenue off peak hours of traffic.

For any questions regarding the traffic and pedestrian safety, traffic data analysis, standards, ADA requirements and engineering design please consult IPMA Safety and Standards division.

Please follow the SOP for shop order processing.

Appendix to follow

A P P E N D I X

DDOT: Accident Summary Report (R-4)

Date: Prepared

By:

Location:

MISSOURI AVE And KANSAS AVE

Quadrant:

NW

Summary for the time period of: 1/1/2008 To 12/31/2008

Total Number of Accidents 5

Total Number of Injuries: 2

Contributing Factors:

Driver:	Vehicle:	Roadway:	Unknown:
2 40.00%	0 0.00%	0 0.00%	0 0.00%

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked:
3	0	0	2	0	0	0
	Ran Off			Non Collision:		
Fixed Object:	Road:	Pedestrian:	Backing:	Other:		
0	0	0	0	0	0	

Accident Times:

Time	Number	Percent
07:30-09:30	0	0.00%
09:30-11:30	1	20.00%
11:30-13:30	0	0.00%
13:30-16:00	2	40.00%
16:00-18:30	0	0.00%
18:30-07:30	2	40.00%
Weekday:	2	40.00%
Weekend:	2	40.00%

Table 1.

DDOT: Accident Summary Report (R-4)

Date: Prepared

By:

Location:

MISSOURI AVE And 1ST ST

Quadrant:

NW

Summary for the time period of: 1/1/2008 To 12/31/2008

Total Number of Accidents 2

Total Number of Injuries: 2

Contributing Factors:

Driver:	Vehicle:	Roadway:	Unknown:
2 100.00	0 0.00%	0 0.00%	0 0.00%

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked
0	0	0	1	1	0	0
	Ran Off			Non Collision:		
Fixed Object:	Road:	Pedestrian:	Backing		Other:	
0	0	0	0	0	0	

Accident Times:

Time	Number	Percent
07:30-09:30	0	0.00%
09:30-11:30	1	50.00%
11:30-13:30	0	0.00%
13:30-16:00	1	50.00%
16:00-18:30	0	0.00%
18:30-07:30	0	0.00%
Weekday:	2	100.00%
Weekend:	0	0.00%

Table 2.

DDOT: Accident Summary Report (R-4)

Date: Prepared

By:

Location:

MISSOURI AVE And 2ND ST

Quadrant:

NW

Summary for the time period of: 1/1/2008 To 12/31/2008

Total Number of Accidents 4

Total Number of Injuries: 0

Contributing Factors:

Driver:	Vehicle:	Roadway:	Unknown:
0 0.00%	0 0.00%	0 0.00%	2 50.00%

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked:
1	0	0	0	3	0	0
	Ran Off			Non Collision:		
Fixed Object:	Road:	Pedestrian:	Backing:		Other:	
0	0	0	0	0	0	

Accident Times:

Time	Number	Percent
07:30-09:30	1	25.00%
09:30-11:30	1	25.00%
11:30-13:30	0	0.00%
13:30-16:00	0	0.00%
16:00-18:30	1	25.00%
18:30-07:30	1	25.00%
Weekday:	4	100.00%
Weekend:	0	0.00%

Table 3.

DDOT: Accident Summary Report (R-4)

Date: Prepared

By:

Location:

MISSOURI AVE And KENNEDY ST

Quadrant:

NW

Summary for the time period of: 1/1/2008 To 12/31/2008

Total Number of Accidents 4

Total Number of Injuries: 1

Contributing Factors:

Driver:	Vehicle:	Roadway:	Unknown:
1 25.00%	0 0.00%	0 0.00%	1 25.00%

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked
0	1	1	1	1	0	0
	Ran Off			Non Collision:		
Fixed Object:	Road:	Pedestrian:	Backing		Other:	
0	0	0	0	0	0	

Accident Times:

Time	Number	Percent
07:30-09:30	1	25.00%
09:30-11:30	0	0.00%
11:30-13:30	0	0.00%
13:30-16:00	2	50.00%
16:00-18:30	1	25.00%
18:30-07:30	0	0.00%
Weekday:	3	75.00%
Weekend:	1	25.00%

Table 4.

Table 5.

Road Safety Audit

Missouri Avenue between Kansas, Kennedy 1st and 2nd Street

Accident History

Intersections	2006		2007		2008	
	Accident	Injuries	Accident	Injuries	Accident	Injuries
Missouri and Kansas	8	8	9	8	5	2
Missouri and Kennedy	5	7	8	1	4	1
Missouri and 1 st Street	4	1	2	0	2	2
Missouri and 2 nd Street	4	3	3	2	4	0

Average Daily Traffic (ADT)

Missouri Ave, NW between New Hampshire and Kansas Ave, NW **20,000**

Kansas Ave, NW between Missouri and New Hampshire Ave **8,000**

Kennedy Street, NW between New Hampshire and Missouri **4,200**



**Figure 1. Missouri Avenue and Kennedy Street between Kansas Avenue and First Street NW.
Right of Way scans - 6 inch.**



Figure 2. Missouri Avenue and Kennedy Street between Kansas Avenue and First Street NW.

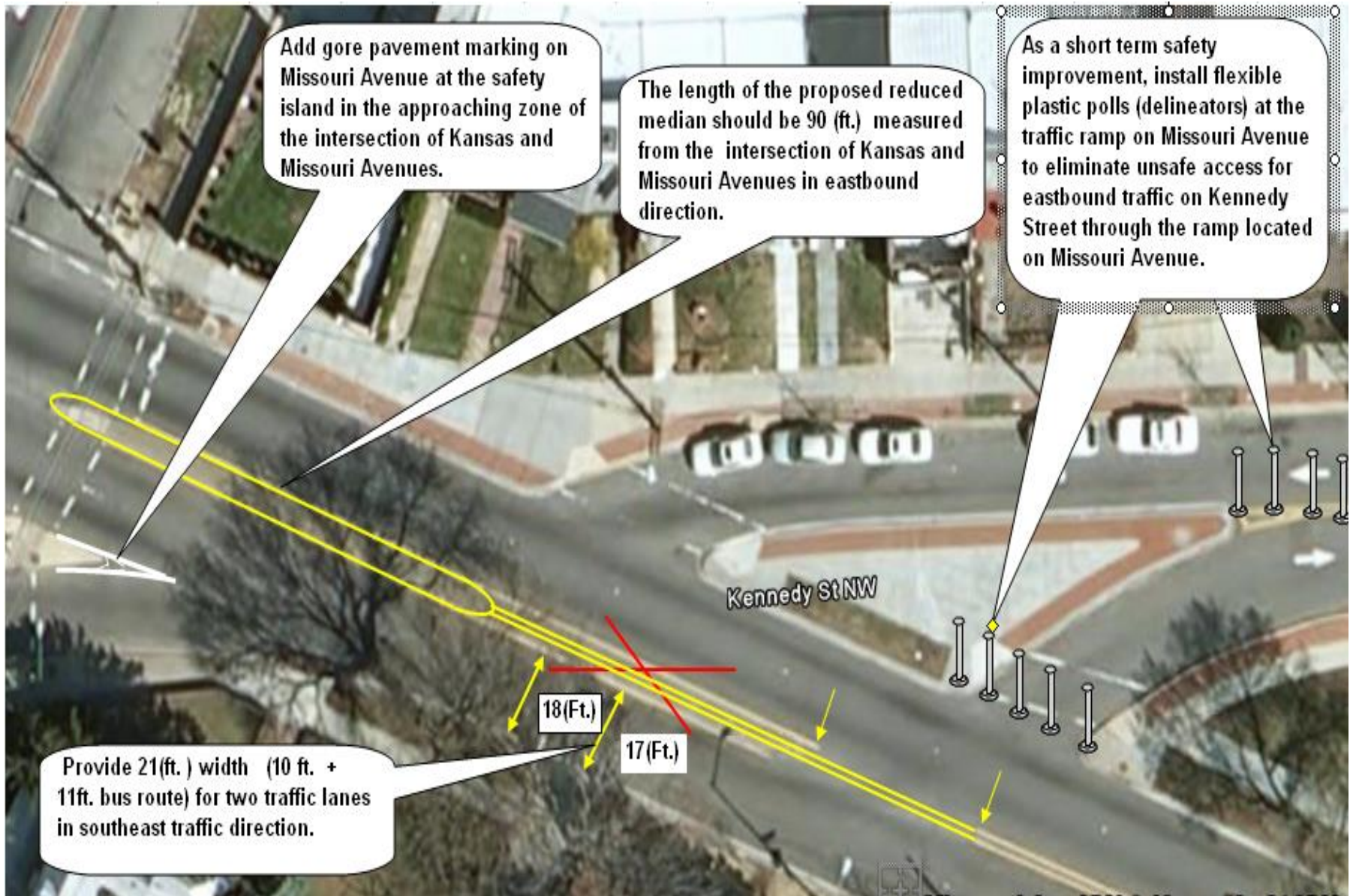


Figure 3. Missouri Avenue and Kennedy Street between Kansas Avenue and 2nd Street NW.



Figure 4. Left turn From Missouri to Kennedy Street, NW.



Figure 5. Missouri Avenue and Kennedy Street, NW.



Figure 6. Intersection: Missouri Avenue, Kansas Avenue and Kennedy Street, NW



Figure 7. Intersection: Kansas Avenue, Missouri Avenue and Kennedy Street, NW



Figure 8. Missouri Avenue, NW



Figure 9. Missouri Avenue and 2nd Street, NW



Figure 10. Missouri Avenue and 2nd Street, NW.



Figure 11. Kennedy Street and 2nd Street, NW.



Figure 12. Crosswalk pavement marking on Missouri Avenue close to Jefferson Street, NW.



Figure 13. Crosswalk on 2nd Street (pavement conditions), NW.