Pedestrian Crossing Signals

October 19, 2016

OIG NEW ORLEANS OFFICE OF INSPECTOR GENERAL

E. R. Quatrevaux, Inspector General

OFFICE OF INSPECTOR GENERAL
CITY OF NEW ORLEANS

ED QUATREVAUX
INSPECTOR GENERAL

October 19, 2016

Re: Pedestrian Crossing Signals

I certify that the inspector general personnel assigned to this project are free of personal or other external impairments to independence.

E.R. Quatrevaux
Inspector General

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I. EXECUTIVE SUMMARY

Orleans Parish had more pedestrian fatalities than any other parish in the state in 2013 through 2015; for four of the last five years, it had more than twice the rate of pedestrian injuries than in Jefferson and East Baton Rouge parishes.

Pedestrian crossing signals increase pedestrian safety. According to a 2008 report by the Federal Highway Administration, adding a pedestrian crossing signal to an intersection where none previously existed reduced the chances of a crash involving a pedestrian by 50 to 55 percent, and upgrading a pedestrian signal to a countdown timer to let people know how much time they had to cross the street decreased the chance of a crash involving a pedestrian by 25 percent. Yet as of early 2016 only 13 percent of signalized intersections in New Orleans had pedestrian crossing signals.

Evaluators examined the effectiveness of policies and practices at the City's Department of Public Works governing decisions about the installation and maintenance of pedestrian crossing signals and assessed whether they were in compliance with national best practices and traffic engineering standards. They also compared pedestrian crossing signal coverage in New Orleans with that of municipalities that the City used to benchmark its performance.

Evaluators inspected downtown intersections on local roads identified in the Comprehensive Zoning Ordinance as corridors intended for multiple users, including cars, buses, streetcars, bicycles, and pedestrians. Evaluators inventoried crossing signals and other pedestrian infrastructure at intersections and assessed the condition and upkeep of traffic signal equipment.

Evaluators found that a decades-long informal DPW custom restricted the use of pedestrian crossing signals and did not comply with traffic engineering standards. The City's Chief Traffic Engineer reported recently abandoning the longstanding practice, but the DPW had not developed written guidelines for when signals should be installed. Decisions about where to install pedestrian crossing signals were based on a "gut call."

In spring 2016 the City began installing additional pedestrian signals and upgrading outmoded signals to countdown timers at 44 downtown intersections. However, the upgrade did not incorporate specifications in the City's ADA Transition Plan,

adopted in 2013, or the Complete Streets ordinance passed by the City Council in 2011. The ADA Transition Plan called for the City to use pedestrian signals with pushbuttons, sound, and vibrations to assist people who were visually impaired.

Evaluators also found that the City did not have a system for tracking infrastructure such as traffic signal equipment and pedestrian signals. Cataloging and managing traffic infrastructure assets is necessary in order to develop a systematic maintenance schedule that can reduce repair and replacement costs, reduce the number of outages, and prolong the life of equipment. Without an inspection and maintenance schedule, the DPW relied on citizen calls to 311 to find out when traffic lights were out.

To increase pedestrian safety, the OIG offered the following recommendations:

- The City should develop and implement a pedestrian crossing signal policy that increases the number of pedestrian crossing signals in New Orleans;
- The City should build internal organizational structures that will help achieve the pedestrian goals in the Master Plan and the Complete Streets ordinance;
- Public investments in infrastructure should be compliant with ADA standards and the DPW's ADA Transition Plan;
- The City should develop a GIS-based asset management system for traffic equipment and other street infrastructure;
- The City should develop an inspection and maintenance program infrastructure at signalized intersections to improve performance, reduce maintenance costs, and prolong the life of city equipment.

The City has agreed to implement the OIG recommendations about pedestrian crossing signals.

II. OBJECTIVES, SCOPE, AND METHODS

The Office of Inspector General for the City of New Orleans (OIG) evaluated the policies and practices governing decisions about the installation and maintenance of pedestrian crossing signals in New Orleans.

The objectives of this evaluation were to determine (1) the effectiveness of these policies and procedures, (2) whether the number and type of pedestrian signals were consistent with best practices and traffic engineering standards, including Federal Highway standards for traffic signals and control devices; and (3) whether the City was on track to meet the pedestrian goals of "New Orleans' Plan for the 21st Century" (Master Plan) and had the structures and resources in place to do so.[1]

The geographic scope of this project was local roads identified in the Comprehensive Zoning Ordinance (CZO) as multi-modal corridors, which are streets intended for use by a variety of users, such as buses, cars, bicycles, and pedestrians.[2] The boundaries of this Central Business District area are approximately Convention Center Boulevard to Claiborne Avenue and Iberville Street to Howard Avenue/Andrew Higgins Drive.[3] It is compact and highly transited by different types of street users, making it suitable for a case study of pedestrian walk signals.

[1] Goody Clancy, *Plan for the 21st Century: New Orleans 2030,* vol. 1 (Boston, MA: August 2010), 3 and 9, accessed March 27, 2016, http://www.nola.gov/getattachment/4dcf72fd-b189-4937-bd69-dba2958a483e/Vol-1-Executive-Summary/. The Master Plan is a "comprehensive, citywide plan [that] will guide the city's growth for the next 20 years" and serves as the "city's primary policy and planning document." The land use chapter of the Master Plan gained the "force of law" when voters approved a city charter amendment that "links the Master Plan with the Comprehensive Zoning Ordinance" (CZO). City Charter Sec. 5-404.

[2] City Ordinance, M.C.S. 26413 (May 14, 2015). The CZO governs land use in New Orleans and is intended to ensure that the City's "… land use regulations … are consistent with the goals set forth in the Master Plan." See Article 17, Central Business District, Section 17.6, Multi-modal/Pedestrian Corridor Design Standards, p. 17-15, and Figure 17-6, Multi-Modal/Pedestrian Corridors, p. 17-21, accessed May 19, 2015, http://czo.nola.gov/article-17/. Evaluators did not include the Tulane Avenue portion of the CZO multi-modal map in the project because Tulane Avenue is U.S. Highway 61, not a local road.

[3] Note: The CZO chapter on the Central Business District covers a large area of downtown, including what is commonly referred to as the Warehouse District and breaks the area down into seven sub-districts.

Figure 1. Multi-modal/Pedestrian Corridors on local roads identified in the Comprehensive Zoning Ordinance

Evaluators conducted analyses of NOLA 311 requests for signal repairs from 2012 to 2015 and a Department of Public Works (DPW) spreadsheet of signalized intersections and walk signals to determine the location, age, condition, and other relevant attributes of pedestrian walk signals.

In September 2015 evaluators conducted a structured inspection of signalized intersections located on downtown multi-modal corridors as defined by the Comprehensive Zoning Ordinance but not included in the Pedestrian Countdown Timers project.[4] Evaluators examined pedestrian safety features and signal

[4] At the time of this report, the Pedestrian Countdown Timers Project was a city public works project funded through the Louisiana Local Road Safety Program, one of the Louisiana Department of Transportation and Development's Local Public Agency programs that provides local governments the opportunity to access federal funds for safety improvements on locally owned and maintained roads. Plans for the Pedestrian Countdown Timers Project included adding pedestrian crossing signals with countdown timers or upgrading existing pedestrian signals to countdown timers at 44 intersections downtown. For additional information on the Local Road Safety Program, see "Louisiana Local Technical Assistance Program," Louisiana Transportation Research Center, accessed August 10, 2016, http://www.ltrc.lsu.edu/ltap/lrsp.html.

maintenance and identified sources of pedestrian and vehicular traffic on these multi-modal corridors, located mostly south (upriver) of Poydras Street.

Evaluators interviewed staff from the DPW, the City Planning Commission, the Human Relations Commission, the Law Department, the Regional Planning Commission, the Louisiana Public Health Institute, the Louisiana Department of Transportation and Development, and ResultsNOLA peer cities. Evaluators also corresponded with public safety professionals, urban planning experts, pedestrian and disabilities advocates, and representatives of traffic engineering professional organizations.

In addition, evaluators reviewed laws, best practices, professional standards, urban planning and pedestrian safety reports, city budgets, performance measures, various DPW documents and plans, planning materials for the City's Pedestrian Countdown Timers Project, and the Plan for the 21st Century: New Orleans 2030 (Master Plan).

The evaluation was conducted in accordance with the Principles and Standards for Offices of Inspector General for Inspections, Evaluations, and Reviews.[5]

This report includes findings and recommendations to improve the planning for and management of pedestrian crossing signals. This report would not have been possible without the assistance of city and state employees, who were generous with their time and expertise.

[5] Association of Inspectors General, "Quality Standards for Inspections, Evaluations, and Reviews by Offices of Inspector General," *Principles and Standards for Offices of Inspector General* (New York: Association of Inspectors General, 2014), http://inspectorsgeneral.org/files/2014/11/AIG-Principles-and-Standards-May-2014-Revision-2.pdf.

The City's Master Plan calls for "walkable, mixed-use corridors and commercial centers to serve neighborhoods;" "enhanced transit, pedestrian and bicycle access in and around downtown;" and "enhanced walkability through safe and attractive sidewalks, paths and intersections for pedestrians."[6]

The City Council adopted the Master Plan in 2010 and passed the Complete Streets ordinance in 2011.[7] The ordinance provided guidelines for designing pedestrian and bicycle safety features into local roadways and was intended to ensure that streetscapes reflected the needs of all users.

Further, it instructed the director of the Department of Public Works (DPW) at length and with specificity to develop goals, metrics, and policies based on national best practices, including the National Complete Streets Coalition Complete Streets Policy Analysis 2010 and the American Planning Association Complete Streets: Best Policy and Implementation Practices.[8]

In 2012 the DPW revised its mission to reflect the Complete Streets values of public safety, quality of life, and economic vitality:

[6] Clancy, *Plan for the 21st Century,* vol. 1:3, accessed March 27, 2015, http://www.nola.gov/getattachment/4dcf72fd-b189-4937-bd69-dba2958a483e/Vol-1-Executive-Summary/.

[7] City Code Sec. 146-36 (a), (c), and (d)(1-2). The purpose of the Complete Streets ordinance was to require "all planning, designing, funding, operation and maintenance of the city's transportation system to accommodate and encourage travel for all users in a balanced, responsible and equitable manner … ." The ordinance "shall apply to all phases of design, development and implementation … [and] to the entirety of transportation facilities' lifetimes, including planning, design, construction, funding, operation, and maintenance."

[8] The Complete Streets ordinance laid out explicit instructions for the director of the DPW: "the director of the DPW shall develop goals and metrics for the Complete Streets policy based on recognized best practices, including, but not limited to, the National Complete Streets Coalition Complete Streets Policy Analysis 2010 and the American Planning Association Complete Streets: Best Policy and Implementation Practices." Further the director of the DPW "shall adapt, develop and adopt departmental policies, design criteria, standards, and guidelines based on recognized best practices in street design, construction and operations including, but not limited to, the latest editions of American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets; AASHTO Guide for Planning, Designing, and Operating Pedestrian Facilities; AASHTO Guide for the Development of Bicycle Facilities; Institute of Transportation Engineers (ITE) Designing Walkable Urban Thoroughfares: A Context Sensitive Approach; National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide; U.S. Access Board: Public Right-of-Way Accessibility Guidelines; Highway Capacity Manual and Highway Safety Manual."

> "The Department of Public Works' mission is to construct and maintain the highest quality of safe and sustainable transportation facilities for users of vehicular, bicycle, pedestrian and rail transportation, in order to improve the quality of life and create opportunities for economic development for all New Orleanians."

The DPW's revised mission acknowledged the importance of ensuring the safety and full participation of all residents in public life. Almost one fifth of New Orleans households did not own cars and used some combination of walking, bicycling, and public transportation.[9]

At the same time, real estate development trends presaged more foot traffic downtown and a greater need for pedestrian planning. According to the Downtown Development District, approximately 1,736 residential dwelling units and 2,924 hotel rooms had been built downtown since 2006, and another 1,344 apartments and 188 hotel rooms were in progress as of January 2015.[10] The tourism industry also continued to grow, with an estimated 9.52 million people visiting the city in 2014.[11]

Finally, health, economic, and environmental trends also suggested that more New Orleanians would be engaging in "active transportation" and commuting by bicycle or on foot: walking in the city increased 67 percent from 2010 to 2013, and bicycling increased 63 percent during the same period.[12]

These trends suggested a need for improved safety measures such as better pedestrian and bicycle infrastructure on local roadways, including Americans with Disabilities Act retrofits, and improvements to signalized intersections and

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[9] "Physical Housing Characteristics for Occupied Housing Units, 2010-2014: American Community Survey 5-Year Estimates," U.S. Census Bureau, American Community Survey, accessed Dec. 8, 2015, http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_S2504&prodType=table.

[10] "Developments in Progress as of January 12, 2015," Downtown Development District, accessed March 27, 2015, http://downtownnola.pairsite.com/wp-content/uploads/2014/06/Developments-In-Progress-January-12-2015.pdf.

[11] New Orleans Convention & Visitors Bureau, "New Orleans Achieves 9.52 Million Visitor and Record-Breaking Visitor Spending in 2014," news release, March 9, 2015, http://www.neworleanscvb.com/articles/index.cfm?action=view&articleID=9241&menuID=1604.

[12] Tara Tolford, *New Orleans 2013 Pedestrian and Bicycle Count Report* (New Orleans, LA: Pedestrian Bicycle Resource Initiative, Merritt C. Becker Jr. University of New Orleans Transportation Institute, July 2013), 62, accessed April 21, 2015, http://www.transportation.uno.edu/documents/bike-pedestrian/PBRI%202013%20COUNT%20REPORT.pdf. The report was prepared for the New Orleans Regional Planning Commission.

sidewalk repairs. However, evidence showed that New Orleans remained a dangerous place for pedestrians.

NEED FOR IMPROVED PEDESTRIAN SAFETY

In the ten-year period from 2003 to 2012, Louisiana had the fifth highest pedestrian fatality rate in the country.[13] The Federal Highway Administration identified New Orleans as a "Pedestrian Safety Focus City" in 2012 due to its pedestrian crash record.[14]

Locally, state highway safety records also revealed New Orleans to be one of the most dangerous places in the state for pedestrians: pedestrians were much more likely to be killed by a car in New Orleans than elsewhere in the state.[15]

Figure 2. Orleans Parish Rank in Louisiana Pedestrian Traffic Fatalities and Number of Pedestrian Fatalities in Orleans Parish

Year	Orleans rank in pedestrian crash fatalities	Number of pedestrian fatalities
2015	1	13
2014	1	13
2013	1	14
2012	3	8
2011	2	8

Source: Highway Safety Research Group, Louisiana State University

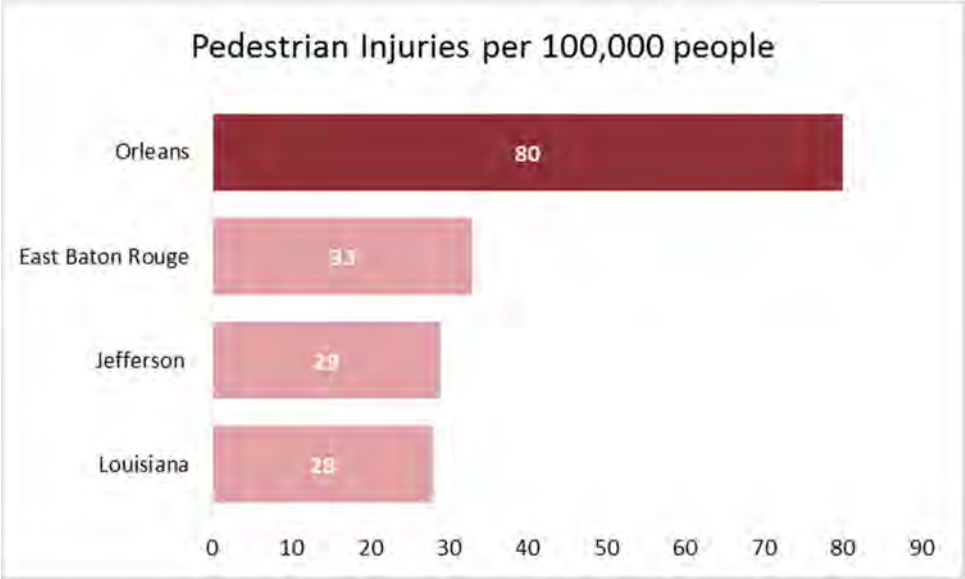
[13] Center for Planning Excellence and Louisiana Public Health Institute, *Danger Zones: A summary of pedestrian fatality trends in Louisiana* (Baton Rouge, LA: Center for Planning Excellence and LPHI, January 2014), accessed April 7, 2015, http://www.norpc.org/assets/pdf-documents/studies-and-plans/Danger%20Zones,%20a%20summary%20of%20LA%20pedestrian%20fatality%20trends%202014.pdf .

[14] The Federal Highway Administration identified "high priority" states and cities that posed "the Nation's most critical safety challenges" and provided technical assistance to increase awareness, develop "key safety infrastructure improvements, and ultimately reduce fatalities and injuries." See "Focused Approach to Safety," Federal Highway Administration, U.S. Department of Transportation, accessed July 28, 2016, http://safety.fhwa.dot.gov/fas/ and "Pedestrian and Bicycle Safety Focus States and Cities," FHWA, U.S. DOT, http://safety.fhwa.dot.gov/ped_bike/ped_focus/.

[15] The Highway Safety Research Group at Louisiana State University compiles traffic safety data from law enforcement agencies throughout the state. See "Pedestrian Fatalities by Parish," data series L6; "Pedestrian Injuries and Fatalities," data series A3; and "Injury Crashes and Injuries by Parish," data series C1, Louisiana State University, Highway Safety Research Group, Louisiana Crash Data Reports, accessed March 27, 2015, and December 10, 2015, and Oct. 11, 2016, at

Orleans Parish led the state in pedestrian fatalities three times in five years and was in the top three parishes for pedestrian deaths in the other years (Figure 2, above).

Figure 3. Average Number of Pedestrian Injuries per 100,000 people, 2011-2015



Source: Highway Safety Research Group, Louisiana State University; U.S. Census Bureau

In addition, Orleans Parish ranked first in Louisiana for pedestrian injuries every year from 2011 to 2015 even though it was smaller in population than East Baton Rouge or Jefferson parishes, the next most dangerous places for pedestrian injuries. In fact, Orleans Parish had more than twice as many pedestrian injuries as anywhere else in the state for three of the five years.

DPW staff were aware that Orleans Parish was a hazardous place for pedestrians because the City used state highway crash data in its guide to street planning for pedestrians, the Pedestrian Safety Action Plan.[16] In the Plan the City committed to

http://datareports.lsu.edu/CrashReportIndex.aspx . For population data, see "Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2014, 2014 Population Estimates," U.S. Census Bureau, American FactFinder, accessed Dec. 10, 2015, for Orleans Parish, Jefferson Parish, East Baton Rouge Parish, Caddo Parish, Lafayette Parish, Ouachita Parish, and the State of Louisiana, at http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

[16] Dana Brown and Associates, and GCR Inc., *City of New Orleans Pedestrian Safety Action Plan Part 1: Engineering Strategies* (New Orleans, LA: New Orleans Regional Planning Commission, July 2014), http://norpc.org/assets/pdf-documents/studies-and-plans/CNO%20PSAP%20-%20Final%20Report%20July%202014.pdf. The Plan specifically recognized the high number of

reducing the average number of pedestrian fatalities from eight in 2011 and 2012 to four per year by 2030, a 50 percent reduction.

New Orleans was not the only city committed to increasing pedestrian safety: numerous cities, including Chicago, Phoenix, and San Francisco, all had plans to make walking safer.[17] Perhaps the most ambitious plan, New York City's 2014 Vision Zero, set out to eliminate pedestrian injuries by re-envisioning pedestrian deaths as a design and public policy problem that could be solved.[18] Toward that end, comprehensive plans such as Vision Zero included engineering, roadway design, regulatory, and law enforcement steps intended to improve pedestrian safety.

INCREASING PEDESTRIAN SAFETY

According to the Federal Highway Administration, installing a pedestrian crossing signal or "ped head" at an intersection where none previously existed resulted in a 50 to 55 percent reduction in the potential for a crash involving a pedestrian.[19] Upgrading an existing pedestrian walk signal to a countdown timer signal reduces the likelihood of crashes involving a pedestrian by 25 percent.[20]

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pedestrian crashes along the St. Peters corridor, including intersections at Poydras and Gravier that were multi-modal, pedestrian corridors but not part of the Countdown Timers project. See Jennifer Ruley, "Planning for Public Safety: The New Orleans Pedestrian Safety Action Plan," Louisiana Public Health Institute, accessed August 6, 2016, http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Multimodal/Highway_Safety/SafetySummit_Day1/Planning%20for%20Pedestrian%20Safety%20(J.Ruley).pdf.

[17] The Federal Highway Administration helps communities and states to develop Pedestrian Safety Action Plans; see "Pedestrian and Bicycle Safety Focus States and Cities," Federal Highway Administration, accessed May 10, 2016, http://safety.fhwa.dot.gov/ped_bike/ped_focus/. Examples of city plans include: Mayor's Pedestrian Safety Task Force, *San Francisco Pedestrian Strategy* (San Francisco, CA: San Francisco Municipal Transportation Agency, January 2013), accessed May 10, 2016, http://archives.sfmta.com/cms/rpedmast/documents/1-29-13PedestrianStrategy.pdf; Mayor's Pedestrian Advisory Council, *Chicago Pedestrian Plan* (Chicago, IL: Chicago Department of Transportation, September 2012), accessed May 10, 2016, http://chicagocompletestreets.org/wp-content/uploads/2014/01/ChicagoPedestrianPlanLowRes.pdf; *Phoenix Pedestrian Safety Action Plan* (draft) (Phoenix, AZ: June 15, 2006), accessed May 10, 2016, http://safety.fhwa.dot.gov/ped_bike/ped_focus/expedaction/phoenix/phoenix.pdf.

[18] The plan was one of the first initiatives announced by the de Blasio administration in 2014. Bill de Blasio, *Vision Zero Action Plan* (New York, NY: City of New York 2014), accessed April 7, 2015, http://www.nyc.gov/html/visionzero/pdf/nyc-vision-zero-action-plan.pdf.

[19] Pedestrian crossing signals, or "ped heads," have been in use since the 1960s, and countdown timers became standard in the 2000s. The most current versions of pedestrian crossing signals have push buttons with vibrations and sound to aid people who are visually impaired. See Appendix C for timelines.

[20] Federal Highway Administration, *Desktop Reference for Crash Reduction Factors*, Report No. FHWA-SA-08-011 (Washington, D.C.: U.S. Department of Transportation, September 2008), 98,

A 2009 study funded by the Federal Highway Administration deemed pedestrian countdown signals one of seven "highly effective" measures for improving pedestrian safety: "In summary, the pedestrian countdown signal appears to be an effective and low cost way to increase safe pedestrian behavior."[21]

Pedestrian crossing signals have been a standard tool in a traffic engineer's tool box for decades although they have not been widely deployed in New Orleans. The transportation chapter of the City's Master Plan noted: "Sidewalks are widespread but most are in need of maintenance and lack modern features such as ADA ramps and pedestrian crosswalks and crossing signals at intersections."[22]

MORE PEDESTRIAN CROSSING SIGNALS

The City released its Complete Streets Program Management Plan in 2012, a year after the passage of the Complete Streets ordinance. The Plan set goals for the installation of pedestrian crossing signals and stated that pedestrian crossing signals should be a "high-priority" on avenues and boulevards.[23] It further stated that pedestrian crossing signals should be "required" on throughways providing regional and metropolitan connections.

In keeping with the Complete Streets Plan, the City began work in April 2016 on the state-funded Pedestrian Countdown Timers Project, which was slated to replace outmoded and broken pedestrian crossing signals on Canal Street and in

accessed October 29, 2015, http://safety.fhwa.dot.gov/tools/crf/resources/fhwasa08011/fhwasa08011.pdf. No study has examined the safety benefit of going from no pedestrian crossing signals to pedestrian signals with countdown timers.

[21] Science Application International Corp., "Pedestrian Safety Engineering and ITS-Based Countermeasures Program for Reducing Pedestrian Fatalities, Injury Conflicts, and Other Surrogate Measures Final System Impact Report" (Washington, D.C.: U.S. Department of Transportation, January 30, 2009), xi, accessed October 29, 2015, http://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_scdproj/sys_impact_rpt/sys_impact_rpt.pdf. The seven countermeasures that researchers deemed highly effective were: a leading pedestrian interval, pedestrian countdown signals, in-street pedestrian signs, activated flashing beacons, rectangular rapid flashing beacons (RRFB), call buttons that confirm the press, and Danish offset combined with high-visibility crosswalk, advance yield markings, and YIELD HERE TO PEDESTRIANS signs. Installing pedestrian crossing signals to curtail pedestrian deaths and injuries not only improves public safety but reduces financial costs to society. According to the National Safety Council, the average cost of a fatality was $4.5 million, and the average cost of an incapacitating injury was $225,100.

[22] Goody Clancy, *Plan for the 21st Century,* vol. 2, chap. 11, 5.

[23] City of New Orleans, Department of Public Works, "The City of New Orleans Complete Streets Program Management Plan" (New Orleans, LA: Dec. 1, 2012), 34-35. The report defines avenues as streets that provide intra-neighborhood connections, and boulevards as streets that provide cross-town and inter-neighborhood connections.

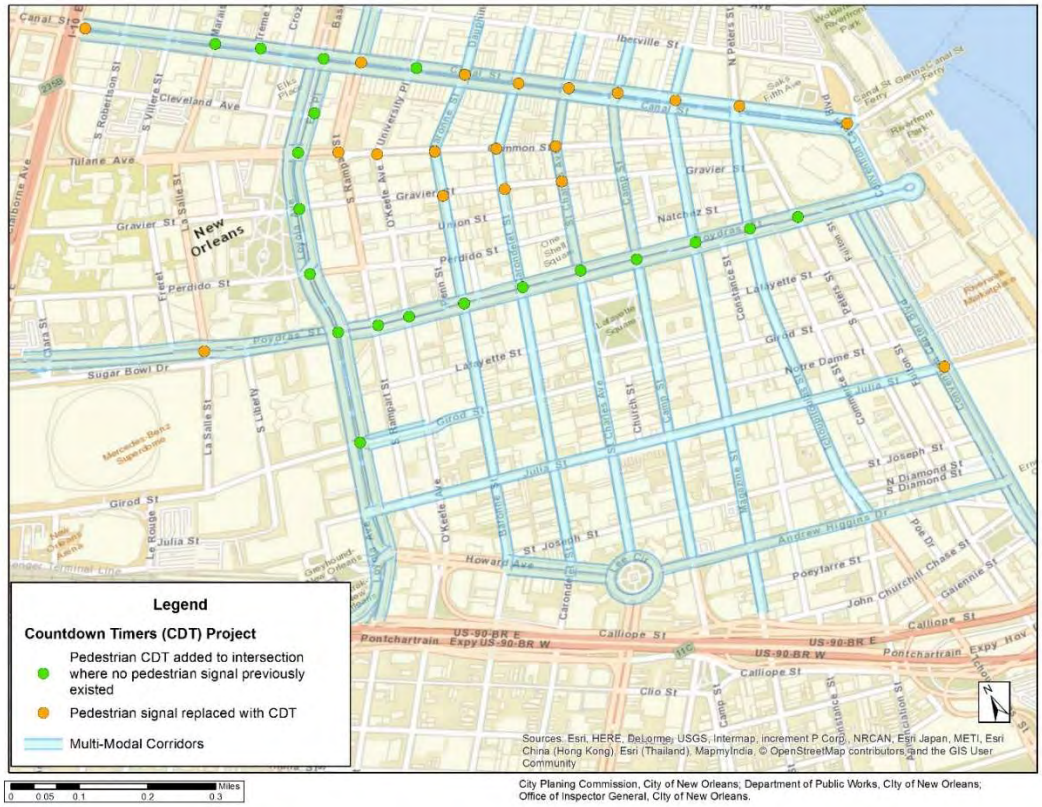
parts of downtown, and add crossing signals for the first time at intersections along Loyola Avenue and Poydras Street.[24]

The Regional Planning Commission successfully secured state funds for the Countdown Timers Project after 2003 state crash data revealed the extent of the risk of pedestrian death on local roads. Plans for the long-delayed project included upgrades to 44 intersections along mostly busy, multi-modal corridors, and all ped heads were slated to have countdown clocks.[25] (See Figure 4 and Appendix D for a map of the intersections included in the Pedestrian Countdown Timers Project.)

The Countdown Timers Project should increase pedestrian safety at selected intersections downtown, but the project covers less than ten percent of the city's 463 signalized intersections. Recognizing the need for additional pedestrian signal projects, the Regional Planning Commission and the City of New Orleans continued to seek additional funds to add pedestrian crossing signals to more intersections.

[24] The State of Louisiana received federal transportation funds to finance projects across the State.
[25] City planners defined roadways as multi-modal corridors in the City's Comprehensive Zoning Ordinance when they served a wide variety of modes of transportation, including pedestrians. As such, multi-modal corridors should be prime candidates for infrastructure designed to increase pedestrian safety, such as pavement striping, clear signage, and pedestrian crossing signals.

Figure 4. Map of the Pedestrian Countdown Timers Project



Approximately 13 percent of the 463 signalized intersections in New Orleans had pedestrian crossing signals in mid-2015. Of the 62 signalized intersections with pedestrian crossing signals, most were outmoded signals with the upraised orange hand and walking person symbol that became standard in 1977.[26] Only 12 of 62 signalized intersections with pedestrian crossing signals at the time of evaluators' review had countdown timers.

Pedestrian crossing signals with countdown timers were used for the first time in 1996, and more communities began adopting them in the late 1990s and early 2000s. The Federal Highway Administration's "Manual on Uniform Traffic Control Devices" (MUTCD) made pedestrian countdown timers the standard type of crossing signal in 2009 after research showed that adding a countdown clock to give pedestrians information about how long they had to cross the street reduced pedestrian injuries and death at intersections.

[26] See the timeline in Appendix C for additional details. U.S. Department of Transportation, Federal Highway Administration, *Manual on Uniform Traffic Control Devices*, 2009 edition, Part 4, Highway Traffic Signals, Section 4C.05, Warrant 4, Pedestrian Volume, 442, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4c.htm. The 2009 edition of the MUTCD set a target compliance date of December 22, 2013, for replacing pedestrian signals with countdown timers. Federal Highway Administration, *MUTCD*, Introduction, Target Compliance Dates Established by the FHWA, I-5, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm. Also, Science Application International Corp., *Pedestrian Safety Engineering and ITS-Based Countermeasures Program for Reducing Pedestrian Fatalities, Injury Conflicts, and Other Surrogate Measures Final System Impact Report* (Washington, D.C.: U.S. Department of Transportation, January 30, 2009), xi, accessed October 29, 2015, http://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_scdproj/sys_impact_rpt/sys_impact_rpt.pdf.

The intersection of South Robertson and Poydras streets was one of a dozen intersections with countdown timers to help pedestrians assess whether they have enough time to cross the street.

Figure 5. Count of Signalized Intersections with Pedestrian Signals in New Orleans

Number of Signalized Intersections		**463**
Number of Signalized Intersections with Pedestrian Crossing Signals	50	**62**
Number of Signalized Intersections with Countdown Timers	12	
Percent of Signalized Intersections with Pedestrian Crossing Signals		**13.4%**

Source: Department of Public Works

New Orleans pedestrian signal data contrasted sharply with that of New Orleans's peer cities in its "ResultsNOLA" reports.[27] All New Orleans peer cities had a higher proportion of signalized intersections with ped heads than New Orleans. In New Orleans, 13.4 percent of signalized intersections had pedestrian crossing signals; in its peer cities, the percentage ranged from a low of 33 percent in Baton Rouge to a high of 99 percent in Tampa, FL. The eight peer cities also had a greater number of intersections with countdown timers, and Raleigh, NC, and Tampa, FL, had replaced all pedestrian signal heads with countdown timers.

[27] City of New Orleans, *ResultsNOLA 2014 Year-End Performance Report* (New Orleans, LA: City of New Orleans, February 27, 2015), 11-12, accessed November 5, 2015, http://www.nola.gov/getattachment/d7f457f3-1104-432b-ae22-459c9b3fef20/ResultsNOLA-Year-End-Report/.

Figure 6. Pedestrian Signal Infrastructure in New Orleans and ResultsNOLA Peer Cities [28]

City, state	Number of signalized intersections	Number of signalized intersections with crossing signals	Percentage of signalized intersections with crossing signals	Number of crossing signals that are countdown timers	Percentage of crossing signals that are countdown timers
Atlanta, GA	970	728-776*	75-80%*	unavailable	unavailable
Baton Rouge, LA	464	153	33%	About 102*	67%
Louisville, KY	1,000	>500*	≥ 50%	unavailable	unavailable
Memphis, TN	746	596*	80%	about 100-110*	17-18%
Miami, FL	2,870	2,408	84%	1,748	73%
Nashville, TN	unavailable	unavailable	unavailable	unavailable	unavailable
Oklahoma City, OK	760	547	72%	unavailable	unavailable
Raleigh, NC	623	311*	50%*	311*	100%
Tampa, FL	536	530	99%	530	100%
New Orleans	463	62	13.4%	12	19%

Source: OIG interviews and email requests with ResultsNOLA peer cities

FINDING 1. THE CITY OF NEW ORLEANS HAD FEW PEDESTRIAN CROSSING SIGNALS BECAUSE A LONGSTANDING INFORMAL PRACTICE AT THE DEPARTMENT OF PUBLIC WORKS IGNORED NATIONAL BEST PRACTICES AND RESTRICTED THE USE OF CROSSING SIGNALS, CONTRIBUTING TO A DANGEROUS ENVIRONMENT FOR PEDESTRIANS.

While other cities encouraged the use of pedestrian signals in keeping with national best practices, New Orleans historically restricted the installation of pedestrian crossing signals. The practice resulted in a wide gap between New Orleans and its peer cities in pedestrian signal investment.

[28] Asterisks denote estimates provided by traffic engineers from peer cities. Evaluators called each of the peer cities and inquired about the number of signalized intersections, the number of signalized intersections with pedestrian crossing signals, and the number of signalized intersections with countdown timers. Evaluators followed up on estimates with city engineers in an effort to obtain the most accurate numbers possible.

The Federal Highway Administration's "Manual on Uniform Traffic Control Devices" (MUTCD) sets national standards for traffic engineers. It states that pedestrian crossing signals should be used when:[29]

- the number of pedestrians or vehicles at an intersection in a given time period meets an established threshold;[30]
- traffic signals stop cars in all directions to let pedestrians cross;
- there is a school crossing at an intersection with a traffic signal; or
- engineers determine that pedestrians could find the intersection confusing or when there could be conflicts between pedestrians and cars.

In addition to national standards, MUTCD offers guidance to traffic engineers, noting that pedestrian signal heads should be used if:

- "it is necessary to assist pedestrians in deciding when to begin crossing the roadway in the chosen direction or if engineering judgment determines that pedestrian signal heads are justified to minimize vehicle-pedestrian conflicts;"
- "pedestrians are permitted to cross a portion of a street, such as to or from a median of sufficient width for pedestrians to wait, during a particular interval but are not permitted to cross the remainder of the street during any part of the same interval;" and/or
- "no vehicular signal indications are visible to pedestrians, or if the vehicular signal indications that are visible to pedestrians starting a crossing provide insufficient guidance for them to decide when to begin crossing the roadway in the chosen direction, such as on one-way streets, at T-intersections, or at multi-phase signal operations."[31]

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[29] *Manual on Uniform Traffic Control Devices*, 2009 edition, Part 4, Highway Traffic Signals, Section 4C.05, Warrant 4, Pedestrian Volume, 442, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4c.htm; and chap. 4E, Pedestrian Control Features, Section 4E.03, Application of Pedestrian Signal Heads, 495-496, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4e.htm.

[30] MUTCD graphs depict pedestrian and vehicular traffic volume thresholds that warrant pedestrian signals. Numerous jurisdictions have customized MUTCD guidance and written specific policies based on demand for street crossings and the type of pedestrians. For example, the North Carolina Department of Transportation standard (1997) states that when 100 pedestrians try to cross an intersection in a four-hour period, or when 190 pedestrians try to cross in a one-hour period, a pedestrian signal is probably necessary. When large numbers of children and elderly people are crossing, recommended thresholds may be half that amount.

[31] *MUTCD*, Section 4C.05, Warrant 4, Pedestrian Volume, 495, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4c.htm.

MUTCD further recommended that the guidelines above should be used in conjunction with traffic engineers' professional judgment. Under MUTCD guidance listed above, most intersections in downtown New Orleans and many of its wide boulevards with medians or a neutral ground could qualify for pedestrian crossing signals because pedestrians need better information on when to proceed and how much time they will have to cross.

Despite MUTCD's guidelines, the DPW had no formal written policies governing the installation of pedestrian crossing signals. The DPW director reported relying heavily on informal judgment to determine whether crossing signals were necessary. For example, he said his department determined that pedestrian crossing signals were not necessary in the overhaul of the downtown section of Loyola Avenue with the opening of the streetcar line in 2013. The new curbs, street design, sidewalks, signs, signal timing, and traffic light phasing were sufficient to create a safe environment for pedestrians, and the traffic volume and frequency of streetcar service did not necessitate additional infrastructure to ensure safety. Although New Orleans "could always use more" pedestrian crossing signals, the DPW director said, it was a "gut call" whether to install them.

The DPW's decision not to install pedestrian crossing signals on Loyola was consistent with a longstanding unwritten, informal practice in New Orleans that permitted the installation of pedestrian signals under only one of the MUTCD conditions: when traffic lights were red in all directions to stop traffic for pedestrians.[32] However, because it was not feasible to stop traffic in all directions for a long enough period of time for pedestrians to cross, the DPW deemed many major roadways in the city ill-suited for pedestrian crossing signals. As a result, the DPW discouraged the use of pedestrian crossing signals, creating conditions even more hazardous for pedestrians.[33]

[32] Evaluators spoke with a number of employees at the DPW, but no one knew the origin of this unwritten "policy." According to the City's Chief Traffic Engineer, the custom had been in place long before he first started working at the DPW in 1991. The Department of Public Works director noted that in his experience in federal and local government, it was common for practices to be unwritten because public employees often stayed in departments for a long time and could provide institutional knowledge. Still, he noted that he had been trying to develop written policies for many informal DPW practices.

[33] The informal custom restricting the use of pedestrian crossing signals compromised pedestrian safety. Shortly after being appointed to his job, the City's Chief Traffic Engineer told evaluators he had to direct the National World War II Museum to remove a pedestrian crossing signal. The museum had installed the signal at the corner of Magazine Street and Andrew Higgins Drive to ensure the safety of visitors to the museum, but it violated the City's informal policy because the

Deployment of pedestrian crossing signals in downtown New Orleans provided evidence that the unwritten practice had been in place for decades. The Central Business District had pedestrian crossing signals on relatively minor streets that were once hubs for shopping and pedestrian activity, such as the corner of Baronne and Common streets, previously home to department stores and, until recently, home to the Wyndham Garden hotel.[34] In contrast, intersections outside of office towers built along Poydras Street in the 1970s and 1980s did not have pedestrian crossing signals.[35]

The DPW director stated that resource constraints were often an issue, but the fact that few pedestrian crossing signals were installed under the decades-old practice contributed to an unsafe climate for pedestrians in New Orleans. It also meant that the City faced the cost of deferred infrastructure investment in pedestrian crossing signals in order to make the streets safer for pedestrians and meet traffic engineering best practices for traffic signals and controls.[36]

Moreover, the DPW appeared comfortable making engineering judgments in the absence of data. The Chief Traffic Engineer said he was interested in traffic and pedestrian counts, but he was more interested in examining the local conditions

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signals did not stop traffic in all directions. The situation at the World War II Museum prompted the Chief Traffic Engineer to reconsider the unwritten policy.

[34] On other streets, Instead of pedestrian crossing signals, the DPW frequently installed small red-yellow-green traffic signals facing the opposite direction of vehicular traffic to inform pedestrians when they could cross. However, these backward-facing traffic signals did not provide pedestrians with sufficient information: they did not acknowledge pedestrians as a distinct street user group, they worked on the same timing as regular traffic signals, and they did not communicate any information about how much time was left to cross.

[35] For example, One Shell Square, 701 Poydras, corner of Poydras Street and St. Charles Avenue, 1972; Texaco Building, 400 Poydras, corner of Poydras and Magazine streets, 1983; Poydras Center, 650 Poydras, corner of Poydras and Magazine streets, 1983; Energy Centre building, 1100 Poydras, corner of Poydras Street and Loyola Avenue, 1984; and First Bank and Trust Tower, 909 Poydras, corner of Poydras and O'Keefe streets, 1987. All aforementioned buildings are owned by the Hertz Investment Group. See http://hertzgroup.com/current.html, accessed February 22, 2016. Also, Pan American Life Building, 601 Poydras, corner of Poydras Street and St. Charles Avenue, 1980.

[36] The Chief Traffic Engineer estimated that each pedestrian signal head, with installation and wiring, costs about $1,000 to $1,500. Because signals face both directions, most intersections will have eight pedestrian signal heads, or 12 if there is a median. Estimates from other cities appeared lower, likely because many other cities could upgrade existing pedestrian signals to countdown timers rather than install a countdown timer where no pedestrian signal previously existed. For example, the San Francisco Bay area Metropolitan Transportation Commission reported in 2009 that the average purchase price of a countdown timer ranged from $300 to $800, and noted that "the great majority of installations are simple drop-in replacement." See "Safety Toolbox: Engineering, Countdown Signals," Metropolitan Transportation Commission, accessed May 4, 2015, http://www.mtc.ca.gov/planning/bicyclespedestrians/tools/countdownSignal/ index.htm

of an intersection, such as the width of the street and age of the traffic signal equipment, to determine whether a pedestrian crossing signal was needed. As an example, he said he decided that a local school needed additional pedestrian crossing amenities after watching a grandmother and child cross the street to go to school.[37]

RECOMMENDATION 1. THE CITY SHOULD DEVELOP AND IMPLEMENT A PEDESTRIAN CROSSING SIGNAL POLICY THAT INCREASES THE NUMBER OF PEDESTRIAN CROSSING SIGNALS IN COMPLIANCE WITH TRAFFIC ENGINEERING STANDARDS AND THE DIRECTIVES OF THE COMPLETE STREETS ORDINANCE.

The City should develop and implement an evidence-based, formal policy governing the use of pedestrian crossing signals consistent with best practice and legal requirements including the Complete Streets ordinance. Toward that end, whether or not to install a pedestrian crossing signal in any given location should be driven by carefully considered written policy, and be based on reliable data. The expenditure of limited public funds should result in the greatest possible increase in public safety.

The Master Plan instructed the City to make improvements in pedestrian amenities. Further, the transportation chapter directed the DPW to "develop and adopt guidelines for pedestrian facilities of all types to improve the quality of the

[37] Since the Chief Traffic Engineer told this story, the DPW installed a flashing school crossing zone light near the school and installed pedestrian crossing signals at two signalized intersections on either side of the school. However, the "ped heads" do not cover all legs of the intersections and the set of pedestrian signals that were operational at the time of evaluators' review were not countdown timers. Also, no ped heads were observed at signalized intersections on the major street on the other side of the school, also used by students to enter and leave school grounds. MUTCD standards call for the application of pedestrian and/or school crossing signals when the volume of students or cars at peak periods warrants additional safety features. See *MUTCD*, Section 4C.01, Studies and Factors for Justifying Traffic Control Signals, 436, and Section 4C.06, Warrant 5, School Crossing, 442-445, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4c.htm. See also, *MUTCD*, Section 4E.03, Application of Pedestrian Signal Heads, 495, accessed March 12, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4e.htm.

pedestrian environment throughout the city by improving striping, signage, and pedestrian crossing signals."[38]

The DPW should follow the Master Plan and its Complete Streets Program Management Plan. It should develop written guidance on the use of pedestrian crossing signals, including written guidelines for assessing whether signalized intersections need pedestrian crossing signals, how to prioritize the work, which type of signals should be used, and what active steps should be taken to meet national standards.

Developing written guidelines on pedestrian crossing signals could also provide the DPW with the opportunity to develop policies and procedures to guide departmental decision-making so that work can be executed in a deliberate, transparent, and efficient manner.[39]

To increase the number of pedestrian crossing signals, the DPW should also continue to identify additional funding and partnership opportunities to assist the City with implementing pedestrian amenities and safety infrastructure. Agencies such as the Regional Planning Commission (RPC), local Complete Streets researchers, and advocacy and public health groups can provide strategic assistance with developing plans and finding resources to add pedestrian crossing signals to New Orleans intersections where needed to protect pedestrian safety.

FINDING 2. THE CITY OF NEW ORLEANS DID NOT PROVIDE THE LEADERSHIP, PLANNING, AND COORDINATION NEEDED TO FULFILL THE PEDESTRIAN GOALS OF THE MASTER PLAN AND COMPLETE STREETS ORDINANCE.

Policymakers' lack of leadership and insufficient coordination among relevant agencies and committees impeded the City's ability to tackle the many pedestrian

[38] Goody Clancy, *Plan for the 21st Century*, vol. 2, chap. 11, 11.28-11.29. The transportation chapter instructs the Department of Public Works to reinforce efforts to improve pedestrian infrastructure by formally adopting guidelines. The Chief Traffic Engineer said that the DPW had changed its stance regarding the inclusion of pedestrian crossing signals at intersections, and when major work was done at signalized intersections, pedestrian crossing signals with countdown timers would be considered.

[39] The DPW had a staff handbook that provided information on City employee policies, and it had a new edition of the General Specifications for Street Paving, but neither provided guidance on department policy and decision-making regarding pedestrian crossing and traffic signals.

goals in the Master Plan. (See Appendix A for the Master Plan's goals.) For example:

- The DPW and the City Planning Commission did not have adequate performance measures related to implementing accommodations for pedestrians required in the Complete Streets ordinance and the Master Plan. (See Appendix B for a list of performance measures in the City's annual adopted budget books.) In 2011 and 2012 the DPW declared in its vision statement that it planned to develop performance measures related to the Master Plan, but it failed to do so.
- The executive director of the City Planning Commission, the agency responsible for implementing and maintaining the Master Plan, did not actively promote, implement, or track the Plan's goals: it postponed implementation of the Master Plan while it worked on the Comprehensive Zoning Ordinance from 2010 to 2015.
- The Complete Streets Advisory Committee required by the Complete Streets ordinance to advise the DPW on implementation of the Complete Streets program was disbanded because of concerns about the legal structure of the committee.
- The Pedestrian and Bicycle Safety Advisory Committee, called for in the Master Plan, was not seated until August 2015, five years after the Plan's adoption.[40]
- The City had not created permanent, dedicated positions focused on pedestrian and bicycle issues as called for in the Master Plan and Complete Streets ordinance.
    - The DPW did not have a dedicated, funded Complete Streets manager position; rather, one of its construction project managers was the point person for Complete Streets and Americans with Disabilities Act issues alongside his main duty of managing the Federal Emergency Management Agency (FEMA)-funded Recovery Roads program in the department.
    - The City's "pedestrian bicycle safety engineer"—the person responsible for improving street design to promote walking and bicycling to work to build a healthier population—had worked for many years in a combination of a grant-funded and/or part-time positions, often across several departments.

[40] The DPW appointed a representative to attend Pedestrian and Bicycle Safety Advisory Committee meetings to fill the void left by the defunct Complete Streets advisory committee.

    - The City Planning Commission hired two transportation planners in 2015; the previous person who held the position did not take an active role in transportation issues.
- The City Council denied DPW funding requests for Complete Streets implementation every year since the Complete Streets ordinance was passed.
- In a 2012 Complete Streets implementation workshop, the City Planning Commission said that its biggest obstacles to implementing Complete Streets practices were funding and political support for requiring developers to improve adjacent rights-of-way when seeking approval for projects.[41] Studies such as traffic impact analyses could have been used as a tool to require developers to make improvements in line with the City's walking and biking goals, an approach widely used by other cities. However, the City Planning Commission had not updated its guidelines to require them.[42]

The city remained a dangerous place for pedestrians due in part to the lack of permanent organizational structures to coordinate and implement pedestrian-oriented initiatives. These structures included dedicated committees that bring

[41] The Master Plan called for land-use decision-making to be integrated with transportation projects. One action step called for the City Planning Commission to "establish traffic impact analysis guidelines that look beyond the development site for pedestrian generators and linkages." Goody Clancy, *Plan for the 21st Century*, vol. 1, executive summary, 95. Also, Goody Clancy, *Plan for the 21st Century*, vol. 2, chap. 11, 11.9, 11.24. Note: It is unclear how soon the Planning Commission was supposed to complete this task. The Master Plan contained a discrepancy on the timeframe for implementing this recommendation. The executive summary listed it as a short-term 2010-2014 item, but the transportation chapter described overhauling traffic impact analysis guidelines as a medium-term 2015-2019 goal.

[42] The Massachusetts Department of Transportation probably had the most far-reaching policy. MassDOT asked developers to demonstrate how they could assist the state in achieving eight different policy goals dealing with health and the environment. The MassDOT Transportation Impact Analysis (as opposed to a "traffic" impact analysis in other places) specifically asked for counts of cars, bicycles, and pedestrians, and analyses of how public transportation would be affected. Developers were encouraged to build showers and changing facilities in new buildings to accommodate bicyclists and to provide safe and sheltered bike racks and travel information about different modes of transportation and maps. Developers could be made to pay for streetscape improvements, including traffic control devices oriented toward pedestrians. If developers did not want to make the changes needed, in some cases MassDOT would allow developers to pay the equivalent value of the changes that would have been required into a transportation mitigation bank. Policies such as these can help communities create tools to advance local policy goals. Massachusetts Department of Transportation, *Transportation Impact Assessment (TIA) Guidelines* (Boston: Massachusetts Department of Transportation, March 13, 2014), accessed August 12, 2015, https://www.massdot.state.ma.us/Portals/17/docs/DevelopmentReview/TIA_Guidelines_3_13_2014.pdf.

together key stakeholders; advocate for permanent positions, new policies, and performance measures; and seek funding.[43]

RECOMMENDATION 2. THE CITY SHOULD DEVELOP INTERNAL ORGANIZATIONAL STRUCTURES DESIGNED TO ACHIEVE THE PEDESTRIAN GOALS IN THE MASTER PLAN AND COMPLETE STREETS ORDINANCE AND MAKE NEW ORLEANS STREETS SAFER FOR ALL STREET USERS.

The City should implement the Complete Streets ordinance. Toward that end, it should institutionalize long-standing, grant-funded programs dealing with pedestrians and bicycles. It should also build organizational capacity for pedestrian and bicycle initiatives in city government by having appropriate advisory committees and personnel in the planning and public works departments.

In addition, it should establish policies and performance measures, assess progress toward stated goals, monitor implementation, and refine operations based on best practices to improve pedestrian safety.

[43] See Barbara McCann and Suzanne Rynne, editors, *Complete Streets: Best Policy and Implementation Practices*, Planning Advisory Service Report No. 559 (Chicago: American Planning Association, April 1, 2010), chap. 5, accessed August 12, 2015, http://www.smartgrowthamerica.org/documents/cs/resources/cs-bestpractices-chapter5.pdf See also "Changing Procedure and Process," Smart Growth America, National Complete Streets Coalition, accessed March 27, 2015, http://www.smartgrowthamerica.org/completestreets/implementation/changingprocedureandprocess. See also SRF Consulting Group, *Complete Streets Implementation Resource Guide for Minnesota Local Agencies,* Research Project MN/RC – 2013RIC02 (St. Paul, MN: Minnesota Department of Transportation Research Services, February 2013), accessed August 12, 2015, http://www.dot.state.mn.us/research/TS/2013/2013RIC02.pdf.

V. Meeting Americans with Disabilities Act (ADA) Requirements

A visually impaired pedestrian crossed the intersection at Loyola Avenue and Julia Street near the main U.S. Post Office without the assistance of a push-button pedestrian countdown timer with sound and vibrations; in fact, no pedestrian crossing signal had been installed at this corner.

Commitment to pedestrian safety involves making public roadways safe for all populations of street users. Mobility impairments are quite common; according to the U.S. Census Bureau, in 2005 about 54.4 million Americans, approximately one in five residents, had a disability.

Federal policymakers recognized that additional rules would be needed to promote improvements designed to permit individuals with mobility challenges to travel freely on public streets and sidewalks almost immediately after the signing of the Americans with Disabilities Act legislation in 1990. The U.S. Access Board, the federal agency responsible for developing standards related to disability access, had developed recommendations by 1999, released draft guidelines in

2002 and 2005, and issued its proposed guideline in 2011.[44] Final action on the Public Rights-of-Way Accessibility Guidelines (PROWAG) is expected in early 2017. (See Appendix C for timelines.)

When the U.S. Department of Justice and the U.S. Department of Transportation adopt PROWAG, state and local governments will be required to comply with its guidelines when any road building or maintenance project receives money from the U.S. Department of Transportation.[45] Although the guidelines had not been formally adopted, officials with the Federal Highway Administration alerted jurisdictions of the federal government's commitment to PROWAG: the proposed guidelines for pedestrian facilities in the public right-of-way "are the currently recommended best practices, and can be considered the state of the practice that could be followed for areas not fully addressed" in the existing accessibility standards.[46]

The 2011 proposed PROWAG rule required "Accessible Pedestrian Signals and Pedestrian Pushbuttons," integrated devices that use audible tones and vibrotactile surfaces to send WALK and DO NOT WALK information at signalized intersections to visually impaired pedestrians. PROWAG 2011 guidelines strengthened the 2005 version by (1) requiring accessible pedestrian signals and pedestrian pushbuttons when new pedestrian signals are installed, a signal controller and software are significantly altered, or a signal head is replaced; and (2) providing additional detail on how the signals should operate.

The federal government recently estimated that adding pushbutton signals with sound and vibration or replacing existing pedestrian crossing signals with the

[44] United States Access Board, *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way* (Washington, D.C.: United States Access Board, July 26, 2011), accessed October 21, 2015, http://www.access-board.gov/attachments/article/743/nprm.pdf. The United States Access Board proposed earlier version of guidelines in 1992 and 1994, but paused to coordinate its efforts with state and local governments and with the transportation industry.

[45] According to the U.S. Access Board, "when the proposed guidelines are adopted, with or without additions and modifications … the accessibility standards will apply to units of state and local government that construct streets and highways … . For example, a state or local transportation department that finances the design, construction, or alteration of a pedestrian facility in the public right-of-way with a federal grant or loan from the Department of Transportation would be required to comply with the accessibility standards … ." See https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/impacts-on-state-and-local-governments.

[46] U.S. Access Board, *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way* (Washington, D.C.: U.S. Access Board, July 26, 2011), accessed July 7, 2015, https://www.access-board.gov/attachments/article/743/ nprm.pdf.

latest generation PROWAG signals would cost approximately $3,600 more per signalized intersection than the older countdown timer model.[47]

LOCAL MANAGEMENT OF ADA ISSUES

The 2011 Complete Streets ordinance included provisions for individuals with disabilities. It called upon the DPW to improve the accessibility of New Orleans streets in keeping with the Americans with Disabilities Act and specifically referenced the federal accessibility guidelines (PROWAG).

The City outlined how it would meet PROWAG in June 2013, after three years of work by a committee of disability advocates, private citizens, and department liaisons. The City's "Americans with Disabilities Act Transition Plan for Public Rights-of-Way" opened with a pledge from the DPW director:

> "I assure you that the City of New Orleans will uphold the vision and policies presented within this plan, which are in accordance with national guidelines … . The DPW will continue to look for opportunities to involve citizens, stakeholders and partners in the implementation of this plan, future updates to the plan, and in policy decisions affecting accessibility."[48]

Section 3.2.8 of the ADA Transition Plan adopted verbatim PROWAG'S Section R209, "Accessible Pedestrian Signals and Pedestrian Pushbuttons," and recommended that the DPW adopt technical specifications to incorporate the PROWAG language on accessible pedestrian signals in its internal manuals.

In keeping with the 2011 PROWAG, the City's ADA Transition Plan stated that pushbutton signals would only be required when major work was done on traffic

[47] Several New Orleans peer cities had already begun to implement ADA improvements, according to interviews with traffic engineers. For example, Baton Rouge brings signals up to "full ADA compliance" when it makes upgrades. Oklahoma City, OK, set pushbutton and audio ADA pedestrian crossing signals as its standard about seven years ago and was working on converting intersections. Tampa, FL, had some pushbutton signals and had added its first audio-vibration pushbutton signal; it planned to add other audio-vibration features as needed on a case-by-case basis. Atlanta planned to upgrade 300 intersections by the end of 2016 with pushbuttons to meet the latest ADA standards.

[48] Department of Public Works, *City of New Orleans Americans with Disabilities Act Transition Plan for Public Rights-of-Way* (New Orleans, LA: Department of Public Works, June 15, 2013), accessed July 7, 2015, http://www.nola.gov/dpw/documents/ada-transition-plan-final/. See the introductory letter on the unnumbered second page of the document. The City of New Orleans was ahead of the state on planning for PROWAG. The Louisiana Department of Transportation did not yet have an ADA Transition Plan. The state hired a consultant a decade ago to find ADA deficiencies, and a second consultant built a database of that information, but the data had not been analyzed and no plan had yet been formulated.

signals or when pedestrian signals were being installed for the first time. To accomplish this, the City's ADA Transition Plan recommended that the DPW take two actions to incorporate PROWAG guidance on pedestrian signals and other pedestrian amenities into its internal policy handbook, "General Specifications for Street Paving," (also referred to as "General Notes"):

> "RECOMMENDED ACTION: Update DPW specifications to reflect PROWAG technical requirements for new and altered pedestrian signals and pedestrian pushbuttons."[49]
>
> "RECOMMENDED ACTION: Revise City's "General Notes" to require compliance with PROWAG requirements for covered pedestrian facilities."[50]

However, the DPW did not implement the recommendations of its own committee. Neither the DPW's 2015 updated General Specifications manual nor any other departmental guidelines mentioned PROWAG or the recommendations regarding pedestrian walk signals in Section 3.2.8 of the City's ADA Transition Plan.

[49] DPW, *CNO Disabilities Act Transition Plan*, 17.

[50] Ibid., 13-14. DPW's Complete Streets Program Management Plan also recognized ADA Public Right of Way Accessibility Guidelines and the importance of "appropriate access for all users of the roadway." DPW, *Program Management Plan,* 9-10.

At the corner of Girod and O'Keefe streets behind Rouses grocery store, a wheelchair user crossed an intersection without pedestrian crossing signals and no crosswalk in the direction the wheelchair user was traveling.

FINDING 3. THE CITY'S MAJOR INITIATIVE TO ADD OR UPGRADE PEDESTRIAN CROSSING SIGNALS AT DOWNTOWN INTERSECTIONS IGNORED REQUIREMENTS IN ITS 2013 ADA TRANSITION PLAN AND FAILED TO ACCOUNT FOR NEW AMERICANS WITH DISABILITIES ACT REQUIREMENTS EXPECTED TO TAKE EFFECT IN EARLY 2017, LEAVING THE CITY WITH OUTMODED TECHNOLOGY AFTER THE UPGRADE.

The City of New Orleans received federal transportation money awarded through the state for the Pedestrian Countdown Timers Project (Project). The Project was slated to upgrade pedestrian crossing signals to countdown timers along Canal Street and in other parts of downtown and add countdown timer "ped heads" for the first time along Poydras Street and Loyola Avenue.

The Countdown Timers Project had been in the works since 2007, before the 2011 proposed rules had been published, but the design phase of the project did not

start until mid-2013 as the City's ADA Transition Plan was being approved. Final design plans were not signed until June 17, 2015, and work began in April 2016.

Plans for the Pedestrian Countdown Timers Project were not made in keeping with transportation best practices. The 44 intersections included in the Pedestrian Countdown Timers Project did not include pushbuttons, sound, or vibration even though the Project's plans were finalized two years after the City outlined the steps it would take to meet PROWAG in its ADA Transition Plan.

As a result, the plans did not meet the requirements of the City's own ADA Transition Plan, and the City missed an opportunity to make sure the City had the latest technology.[51] According to the City's ADA coordinator: "I'm afraid that it may be outdated already. I do not want us to spend the money on a system that will only meet the needs of a particular population. …"[T]he law … says that there should be accessibility for everyone."

BROADER IMPLICATIONS

The City's failure to follow its own ADA Transition and Complete Streets Program Management plans raised questions about the City's commitment to ADA accessibility. The City of New Orleans has a history of non-compliance with the Americans with Disabilities Act. The City was under consent decree with the U.S. Department of Justice for ADA violations from 2002 to 2011, the result of a lawsuit over lack of access to public buildings for people with disabilities.[52]

The intent of PROWAG was to make sure that public streets and streetscapes were accessible to everyone: all New Orleans citizens have a right to participate fully in

[51] A variety of explanations were offered for not including pushbuttons, sound, and vibration in the Pedestrian Countdown Timers Project. The DPW's chief traffic engineer said that the City would not act until guidelines were final because they could change. The City's part-time pedestrian and bicycle engineer said that she raised the question of whether the Countdown Timers Project needed pushbuttons during the design phase, but traffic engineers said they had trouble getting clarification on PROWAG requirements. The City's ADA coordinator was vaguely aware of the Countdown Timers Project, but had not been involved in any of the planning and was generally not involved in streets issues.

[52] The ADA consent decree stemmed from a lawsuit by the local Advocacy Center, a statewide not-for-profit organization that "protects, empowers, and advocates for the human and legal rights of people with disabilities and seniors." See http://advocacyla.org/about/mission. Federal oversight ended in 2011 because the City had been able to rebuild so many public libraries, police stations, and other government buildings after Hurricane Katrina that it rectified the accessibility problem. When the City reached agreement with the Justice Department in 2002, it created the ADA administrator position in the Mayor's office to help implement Title II of the ADA, which dealt with state and local governments. Title II not only covers public buildings, it also covers public streets and sidewalks because they are City property.

society, and many of the nearly 10 million visitors to the City every year have mobility challenges. The City's ADA coordinator observed that the City of New Orleans invited the world to come visit, but did not make it possible for individuals with mobility challenges to move freely around the City.

The City faced the costs of deferred investment in pedestrian infrastructure because of its long-standing practice of restricting the installation of pedestrian crossing signals. Moreover, if the City did not include pushbuttons with sound and vibration in the Countdown Timers Project and other contemplated signal work, the City would not be required to make upgrades until the new equipment was replaced. As a result, future upgrades would likely be costlier, and New Orleans would continue to lag behind its peers on pedestrian safety and quality of life.

The failure to incorporate PROWAG considerations into the Pedestrian Countdown Timers Project suggested that the DPW needed a more systematic way to ensure that ADA accommodations were part of every project planning process. A single project manager with multiple duties might not be sufficient to ensure that federal ADA guidelines are implemented locally, especially when his work was not guided by written policies.

RECOMMENDATION 3. THE CITY OF NEW ORLEANS SHOULD ENSURE THAT PUBLIC INVESTMENTS IN INFRASTRUCTURE ARE COMPLIANT WITH ADA STANDARDS, AND THE DEPARTMENT OF PUBLIC WORKS SHOULD IMPLEMENT ITS ADA TRANSITION PLAN.

A 2002 federal consent decree cited the City for ADA non-compliance, and the City should make every effort to avoid the possibility of future court orders requiring the City to meet ADA compliance. Although final action on the Public Rights-of-Way Accessibility Guidelines (PROWAG) was not expected until early 2017, the guidelines had remained substantively consistent throughout their development: the U.S. Access Board's clear intent was to ensure that state and local governments use federal dollars to make public rights of way accessible to and safe for all individuals.

The City developed and adopted an ADA Transition Plan as a proactive measure to ensure the City's compliance with impending PROWAG requirements, and the City should implement ADA Transition Plan recommendations. In addition, the DPW should consider adding performance measures related to PROWAG implementation to assess progress toward federal compliance and the ADA Transition Plan's stated goals.

The City's ADA Transition Plan noted that the City designated 5 percent of all capital bond programs to address accessibility improvements in public rights of way. The Transition Plan also listed a number of federal programs that could provide funds for ADA accessibility improvements in public streets and sidewalks. The City should investigate whether these sources could be used to include pushbuttons, sound, and vibration at the intersections in any Pedestrian Countdown Timers Project signals to bring them into compliance with federal guidelines and the ADA Transition Plan.[53]

The DPW should also make sure it has internal policies that require prospective projects to be reviewed for ADA compliance so that the City does not miss opportunities to improve accessibility.

In 2013, 2014, and 2015, the Council denied the Department of Public Works' request to create a project manager position dedicated to the implementation of Complete Streets and the ADA Transition Plan. The DPW should renew requests to the City Council to fund the position to ensure that the City considers ADA accessibility when it makes improvements to public roadways.

The DPW should coordinate its efforts with the City's ADA Administrator, the Mayor's Advisory Council for Citizens with Disabilities, the Council's Pedestrian and Bicycle Safety Advisory Committee, and other city departments to ensure that ADA issues are incorporated into public works projects. The DPW should also provide additional training to employees on ADA best practices on streetscape issues.

[53] DPW, *CNO Disabilities Act Transition Plan*, 36.

VI. PLANNING FOR AND MAINTAINING PEDESTRIAN CROSSING SIGNALS

The ability to assess a city's infrastructure assets, determine where improvements are most needed, and apply for grant money if local funding is not available can be accomplished more efficiently when good information systems provide accurate and reliable data. Modern traffic signal equipment is increasingly high-tech and sensitive; only a planned maintenance program can maximize the equipment's lifespan and enable a community to benefit fully from its investment.

FINDING 4. THE DEPARTMENT OF PUBLIC WORKS DID NOT HAVE A RELIABLE MANAGEMENT SYSTEM FOR FIXED ASSETS SUCH AS PEDESTRIAN CROSSING AND TRAFFIC SIGNAL EQUIPMENT, A NECESSARY FIRST STEP FOR PLANNING AND MAINTENANCE.

Inventory or asset management software allows organizations to track data on the number, characteristics, and location of fixed or moveable pieces of equipment or infrastructure, such as computer equipment, cars, or infrastructure. Moveable pieces of equipment are often tagged with bar codes; fixed assets and infrastructure can be plotted in a Geographical Information System (GIS).[54]

An asset management system integrated with GIS is a prerequisite to cost-effective maintenance and planning. It would allow public works department managers to pinpoint locations of fixed assets in order to speed repairs, identify unusual concentrations of problems, and analyze the performance of equipment. With an inventory of streetlights, catch basins, traffic signals, and pedestrian crossing signals, a public works department can create an inspection and maintenance schedule.[55]

[54] Asset management systems serve a variety of functions. They allow organizations to track style or model numbers, when something was purchased, how much it cost, and what types of components it includes. This information could be useful for maintenance or filing an insurance claim and enable organizations to guard against theft, monitor the age of equipment and performance, track deployment and use, and assess allocation and whether additional pieces of equipment are needed or equipment should be replaced.

[55] Having information on hand about type and age of equipment and where new equipment might be needed could also allow an organization to respond to grant opportunities readily with current, accurate information.

For example, Jefferson Parish has had a GIS system since 1990 and developed its own in-house work order system in the late 1990s.[56] It had been gradually adding to and upgrading these systems for use in public works, and in 2013, it integrated the work order system with GIS. All parish infrastructure was mapped, and water lines, sewer lines, electrical lines, and other data could be displayed for any address. The Parish had a separate computer system used for preventive maintenance, and managers could run reports about the history of infrastructure work performed in the area, including costs and materials.[57]

ASSET MANAGEMENT AND TRAFFIC SIGNAL INFRASTRUCTURE

New Orleans did not have an asset management system for infrastructure but was slowly trying to build a mapped inventory of assets for use in its 311 request line for citizens. The City originally mapped street lights (lights that illuminate streets, not traffic signals), noted their attributes, and tagged each one with an asset identification number. At the time of evaluators' review, the City was recording the location of catch basins.

The DPW did not maintain a list of signalized intersections, pedestrian crossing signals, type of pedestrian signal, and when it was installed; as a result, the DPW did not have the information necessary for maintenance or project planning purposes. Accurate information about sub-standard intersection infrastructure could have enabled the City to include remedies for those problems in its proposal for the Countdown Timers Project.[58]

The chief traffic engineer said that he did not see the need for additional data to be captured on signalized intersections. He acknowledged that traffic signals were not integrated into GIS but said that the DPW knew where its traffic and pedestrian crossing signals were. Further, there might be a map somewhere but it was not something that anyone ever looked at or used.

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[56] According to the City's GIS manager, the New Orleans City Planning Commission started using GIS in the mid to late 1990s. The New Orleans DPW did not have a work order system.

[57] In 2013 CAO Policy Memorandum No. 48(R) set up policies on tracking city assets.

[58] For example, the intersection of Poydras Street and Convention Center Boulevard was not part of the Pedestrian Countdown Timers Project. Not all legs of that intersection had pedestrian crossing signals for pedestrians walking to and from the Hilton New Orleans Riverside, the Convention Center, the Outlet Collection at Riverwalk, and Harrah's Casino. With more precise information on hand about the intersection, the Department of Public Works might have been able to use federal money to complete the pedestrian signalization at the intersection as part of the Countdown Timers Project. There was also no pedestrian signal head on one corner of the intersection of Andrew Higgins Drive and Magazine Street at the National World War II Museum.

RECOMMENDATION 4. THE CITY SHOULD DEVELOP A GIS-ENABLED ASSET MANAGEMENT SYSTEM FOR TRAFFIC EQUIPMENT AND OTHER STREET INFRASTRUCTURE.

The City could benefit from mapping the location, attributes, and condition of traffic and pedestrian crossing signals. Mapping these assets could enable the DPW to track the type of traffic signal at an intersection and how it was posted or hung. It could also document whether it had a pedestrian signal, the type and age of the pedestrian signal, the type of signal controller, the type and age of the bulbs it used, and other information. This data-driven approach could facilitate planning, lay the groundwork for a preventive maintenance program, and assist with emergency repairs.

Individuals in other agencies stated that it was important to maintain a database of information on traffic and pedestrian crossing signals. According to the Regional Planning Commission's (RPC) principal planner, having data on hand could help the DPW plan for equipment and infrastructure upgrades, and it would help the DPW to obtain funding for upgrades by filing accurate grant applications using quickly and easily available data.

For example, if the DPW had state crash and pedestrian fatality data showing a problem at one particular intersection, DPW staff could search the asset management system for other intersections with similar characteristics. A case could then be made to federal and state transportation officials that the City needed funds to improve the safety profile of all intersections with those characteristics.

Analyzing data from an asset management system in tandem with crash and fatality data could also help the DPW demonstrate that upgrading intersections made them safer. Providing that evidence could strengthen the DPW's case when applying for additional funds through programs such as the Louisiana Local Road Safety Program, which paid for the Countdown Timers Project.

RPC's principal planner further noted that Jefferson Parish took advantage of its GIS-enabled asset management systems on a regular basis to compile accurate, data-rich grant applications. Orleans Parish competed with Jefferson and other Louisiana parishes for grant funds and was at a disadvantage if it was unable to provide the same caliber of accurate supporting data in its proposals.

Having streetscape and intersection data on hand could also allow the DPW to apply for funds without contracting professionals to survey intersections, which

the City needed to do for the Countdown Timers grant application. In addition, a GIS-based asset management system could have facilitated the development of the City's ADA Transition Plan, which required detailed knowledge of existing assets, such as wheelchair ramps.

The City should make it a priority to track information about infrastructure assets for planning and maintenance purposes. If the City's efforts to acquire an enterprise resource planning system are successful, it should include a GIS-enabled asset management system.[59] If the City does not execute a contract with an enterprise resource planning vendor, it should move forward with a GIS-enabled asset management and work order system for the DPW and ITI.

A GIS-based asset management system could potentially save the City money in the long run. In the 2015 budget season, the DPW and the Information Technology and Innovation (ITI) group made a joint budget request for a GIS asset management and work order system. They requested $500,000 to purchase a GIS-enabled asset management system, and $104,000 to pay for a GIS analyst to upload assets and their locations into the system.

In support of the request, the DPW and the ITI cited a King County, WA, audit that credited its GIS-enabled asset management system with delivering $775 million in net benefits over an 18-year period. The DPW and ITI also noted in their budget request that detailed information about assets could help the City file insurance or FEMA claims after a disaster when the City could be short on cash.[60]

The City Council denied both requests.

[59] At the time that this report was nearing completion, the City was negotiating with a vendor selected from an RFP for an enterprise resource planning (ERP) system. An asset management system was a core feature of the proposed system, but the software did not include a geomapping component.

[60] In their budget proposal, ITI and DPW said that the King County, WA, findings would amount to a return on investment of $910,000 per year in New Orleans. ITI and DPW's conclusion relied on a comparison of King County's use of GIS over an 18-year period with New Orleans's use of an asset management system and may have exaggerated the savings. However, the evidence suggests that investing in a GIS-enabled asset management system would likely have a long-term financial benefit for New Orleans by making DPW operations more efficient, facilitating an effective preventive maintenance program, resulting in more successful grant proposals, and assisting with insurance and FEMA claims. See Richard Zerbe and Associates, *An Analysis of Benefits from use of Geographic Information Systems by King County, Washington* (Seattle: King County Geographic Information Systems Center, March 2012), accessed May 12, 2016, http://www.kingcounty.gov/~/media/operations/it/news_releases/King_County_GIS_3_12_12_Final.ashx?la=en.

SIGNAL MAINTENANCE IN NEW ORLEANS

The International Municipal Signal Association (IMSA) asserts that inspection and maintenance of traffic signals save money.[61] The organization devoted an entire session to that principle at its August 2015 annual meeting in New Orleans. In a talk titled "Traffic Signal Maintenance: You Can Pay Me Now, or You Can Pay Me Later," the presenter enumerated the financial advantages to communities that set up regular inspection, maintenance, and cleaning schedules for signalized traffic equipment such as traffic lights and pedestrian crossing signals.

- Preventive maintenance keeps people safer by reducing signal outages.
- Preventive maintenance is cheaper because it decreases the chances of an unscheduled outage. Once a signal is broken, signal work will be more extensive and more expensive.
- Dirt and dust make traffic equipment run hotter, which increases the likelihood that it will fail more frequently.
- Regularly maintained equipment lasts longer, and since the cost and sensitivity of computerized traffic signal equipment continually increases, it is cost effective to maintain equipment and prolong its life.
- By performing routine checks, technicians should become more skilled at diagnosing problems and be able to work faster.
- Traffic signal maintenance reduces liability. Light-emitting diodes (LED) continue to operate even when the bulb is only 60 percent as bright as it should be. A crash that occurs when lights are not functioning optimally could result in litigation.[62]
- Lights functioning at less than peak brightness may still draw full electrical current; taxpayers will be paying full utility charges for suboptimal performance.

[61] International Municipal Signal Association 120th Annual Conference and 38th Annual School, August 22-25, 2015, Hyatt Regency New Orleans, accessed August 18, 2015, http://www.imsasafety.org/2015conf/. IMSA speaker Tim Kinnon said that recommendations on inspection, maintenance, and cleaning apply to both traffic lights and pedestrian crossing signals because they are both electronic components of a signalized intersection.

[62] The South Dakota Department of Transportation's maintenance guide states that transportation departments should track maintenance work to defend against lawsuits: "Routine periodic inspection of all traffic control devices is the cornerstone of an effective risk management program." Bucher, Willis, & Ratliff Corporation, *Improved Traffic Signal Maintenance and Management*, study SD2003-1, ES-7 (Pierre, South Dakota: South Dakota Department of Transportation, 2003), accessed August 12, 2015, http://www.sddot.com/business/research/projects/docs/SD2003_01_Final_report.pdf.

The International Municipal Signal Association speaker stated that every local government should perform preventive maintenance, and many do. [63]

FINDING 5. **THE DEPARTMENT OF PUBLIC WORKS HAD NO INSPECTION PROGRAM AND NO SYSTEMATIC MAINTENANCE PROGRAM FOR PEDESTRIAN CROSSING SIGNALS AND TRAFFIC SIGNALS; IT RELIED SOLELY ON EMPLOYEE OBSERVATIONS AND CITIZEN CALLS TO THE CITY'S 311 SYSTEM TO IDENTIFY MALFUNCTIONING EQUIPMENT.**

The DPW did not have formal policies and procedures in place for signal maintenance: the City maintained its traffic signals at 463 intersections and approximately 130 signalized school zones on an ad-hoc basis rather than through a systematic preventive maintenance program. The DPW's "case-by-case" approach to traffic light and pedestrian crossing signal maintenance compromised both pedestrian and vehicular safety.

[63] State, county, and city transportation departments around the country have inspection checklists that provide useful models for the work that should be performed in a maintenance visit and the type of information that could be recorded in an asset management system. While inspection checklists geared toward maintenance are most relevant to the discussion in this report, even checklists for inspections of newly installed equipment could provide useful models for information that could be captured in an asset management system. For new signal equipment, see the "Traffic Signal Inspection Checklist," North Dakota Department of Transportation, accessed August 12, 2015, https://www.dot.nd.gov/forms/sfn59867.pdf; and the Bureau of Maintenance and Operations Traffic Signal Operation Section Traffic Signal and Operational Analysis, *Traffic Signal Inspection Pocket Guide*, publication 669 (Harrisburg, PA: Pennsylvania Department of Transportation, March 2012), accessed August 12, 2015, http://www.dot.state.pa.us/public/pubsforms/Publications/PUB%20669.pdf. For annual inspections for maintenance of existing equipment, see the Bucher, Willis, & Ratliff Corporation, *Improved Traffic Signal Maintenance and Management*, study SD2003-1, ES-7 (Pierre, South Dakota: South Dakota Department of Transportation, 2003), 68-69, accessed August 12, 2015, http://www.sddot.com/business/research/projects/docs/SD2003_01_Final_report.pdf. See also the "Traffic Signal Maintenance Guidelines," Los Angeles County Department of Public Works, accessed August 12, 2015, http://dpw.lacounty.gov/osd/TS_MAINT/TSM_TSE.pdf; and the "Sample MN/DOT Traffic Signal Operation Checklist," Minnesota Department of Transportation, accessed August 12, 2015, http://www.dot.state.mn.us/trafficeng/signals/worksheets/SampleSignalOperationChecklist.pdf.

In addition, job advertisements for traffic signal engineers and solicitations for outside signal maintenance firms from communities around the country indicated the existence of an infrastructure inventory and called for a regular inspection schedule aimed at preventive maintenance. For example, Galt, CA (2012); Orange, CA (date of job description unknown); Punta Gorda, FL (2014); and Union City, NJ (2014) issued solicitations or sought to hire signal maintenance technicians in recent years.

The DPW's director cited two reasons for the lack of systematic preventive maintenance. First, the workshop where the DPW built street signs and repaired traffic signals was never repaired after Hurricane Katrina, so the City could not keep inventories of parts. Second, the City had three repair technicians who were on call 24 hours a day. As a result, the chief traffic engineer said the department outsourced most work to outside contractors at a higher price than the cost of performing the same work in house.[64]

Regardless, the DPW did not have formal policies and procedures in place for when to repair lights or what percentage of a traffic light bulb's pixels had to be burned out to warrant replacement.[65] According to the Public Works director, the goal of the DPW was to have at least one light of each color working in all directions at an intersection and more than 30 percent of a light's pixels had to be burned out before the DPW replaced it.

[64] The City had identified space for a new sign and signal shop in Mid-City on South Genois Street. Architects were working on conceptual designs, and demolition and environmental remediation was needed at the site. The Public Works Director said in fall 2015 that an opening of the new facility was at least two years away. According to the Capital projects website, the project was in the design phase.

[65] The DPW director said that manufacturers say that the light was "working" if 70 percent of the bulb was lit, meaning that the bulb should be replaced when 30 percent of the surface was out.

Traffic signals at Carondelet and Julia were not fully illuminated in November 2015.

DPW's minimum operational standard meant that not all traffic lights functioned at all times, and bulbs could frequently operate at a lower intensity than recommended by manufacturers, reducing the signal's visibility and increasing the risk to public safety. Following the DPW's informal policy, the vehicular and pedestrian traffic traveling a given direction at an intersection could be guided by 70 percent of the surface of a single operating traffic light, calling into question whether DPW's rule of thumb would meet the Federal Highway Administration's "Manual on Uniform Traffic Control Devices" standard of keeping signals in "effective operation."[66]

[66] MUTCD Section 4D.02 states that the "responsible agency should provide for the maintenance of the traffic control signal and all of its appurtenances in a competent manner" and provides instructions for how to keep all signals working optimally. Specifically, MUTCD instructs agencies, among other things, to "clean the optical system of the signal sections and replace the light sources as frequently as experience proves necessary;" "clean and service equipment and other appurtenances as frequently as experience proves necessary;" "have properly skilled maintenance personnel without undue delay for all signal malfunctions and signal indication failures;" "provide spare equipment to minimize the interruption of traffic control signal operation as a result of equipment failure;" "provide for the availability of properly skilled maintenance personnel for the repair of all components;" and "maintain the appearance of signal displays and equipment." See

The DPW also had no systematic way of determining where traffic and/or pedestrian signals were malfunctioning. The Public Works director stated that one source of information about signal malfunctions was notifications from department employees who observed problems while out on the job; however, the DPW relied primarily on calls to 311 from citizens reporting malfunctioning traffic signals and other problems.

The chief traffic engineer told evaluators that the DPW stopped fixing broken pedestrian crossing signals on Canal Street a long time ago because it believed that new signals through the Pedestrian Countdown Timers project would soon be installed. The DPW reasoned that there was no sense in attempting to fix obsolete signal heads and wiring when they could be replaced with updated equipment at someone else's expense. The decision to abandon maintenance of the Canal Street pedestrian signals meant that the DPW ignored MUTCD standards to keep traffic signal equipment "and other appurtenances" functioning at all times.[67]

In fact, visitors and residents had been without the benefit of pedestrian walk signals at many downtown intersections for years. The Countdown Timers project application process to the state began in 2007, and local television stations had been reporting at least since 2012 that pedestrian crossing signals were not functioning downtown, yet most were not fixed.[68]

Justifications for keeping malfunctioning signals in place for almost a decade could only be acceptable in the absence of written maintenance standards designed to ensure public safety.[69]

MUTCD, Section 4D.02, "Responsibility for Operation and Maintenance," 449-450, accessed March 27, 2015, http://mutcd.fhwa.dot.gov/htm/2009/part4/part4d.htm .

[67] Ibid., 449-450.

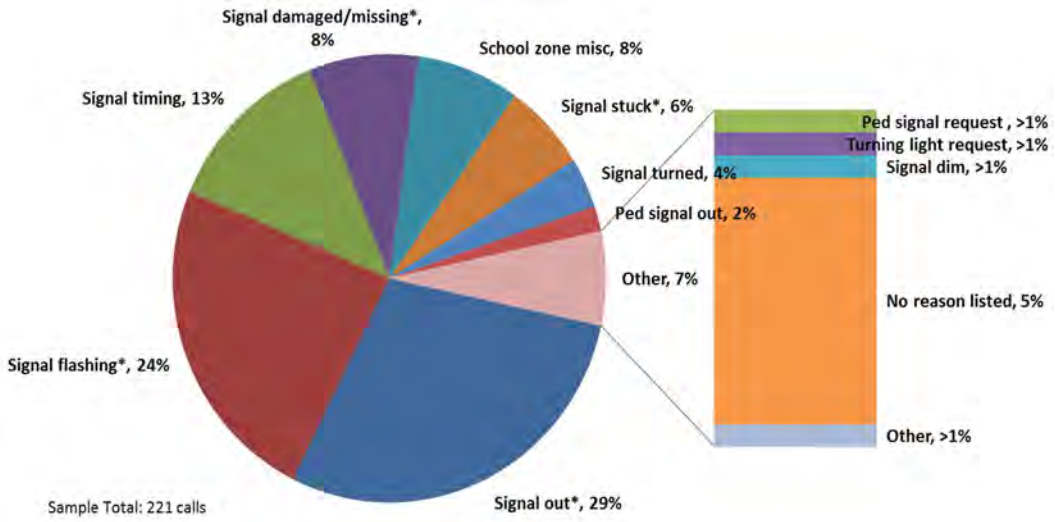
[68] "Walk, Do not Walk signals do not work downtown," Paul Murphy, *Eyewitness News*, aired Oct. 17, 2012, WWL-TV, accessed April 7, 2015, http://www.wwltv.com/story/news/2014/09/03/14553240/. "Faulty crosswalk signal lights cause danger in CBD," Randy Rousseau, *WDSU News*, aired Dec. 20, 2013, WDSU-TV, accessed May 7, 2015, http://www.wdsu.com/news/localnews/neworleans/faultycrosswalksignallightscausedangerincbd/23595812. **7023** "Many New Orleans walk signals do not work," Paul Murphy, *Eyewitness News*, aired Oct. 20, 2014, WWL-TV, accessed May 7, 2015, http://www.wwltv.com/story/news/local/orleans/2014/10/20/manyneworleanswalksignalsdontwork/17633191/.

[69] The DPW could use the MUTCD guidelines as a framework when developing internal policies designed to ensure that best practices and traffic engineering standards govern decision-making.

311 AS A MAINTENANCE STRATEGY

The DPW's reliance on 311 for information about signal problems did not provide complete or reliable information. Evaluators' analysis of calls to 311 reporting traffic signal problems from 2012 through 2015 showed that less than 2 percent of calls concerned traffic signals, 67 percent of which reported emergency conditions.[70] The other third were related to signal timing, school zone lights, signals turned the wrong way, or pedestrian lights.[71]

Figure 7. Subjects of Traffic Signal Calls to 311, 2012-2015



*Evaluators defined these as emergency conditions.
Note: Percentages do not total 100 due to rounding.
Source: NOLA311

People appeared most likely to call when they observed a major problem: 81 percent of calls came when conditions affected the entire intersection and not just a single light.

[70] Evaluators analyzed a random sample of 10 percent of the 2,206 calls to 311 that 311 operators categorized as traffic signals. Of the 221 calls in the sample, evaluators deemed calls about signal outages, signals flashing, signals stuck, or signals hit, damaged, or missing to be emergency situations. Sometimes operators did not record a reason for the call.

[71] From 2012 through 2015, calls about traffic signals were 1.66 percent of the 133,240 calls to 311.

Figure 8. Traffic Signal Calls to 311[72]

Extent of Problem	Number of calls	Percent of calls
Entire Intersection	180	81%
Single Light	30	14%
No reason listed by operator	11	5%
TOTAL	221	

Source: NOLA311

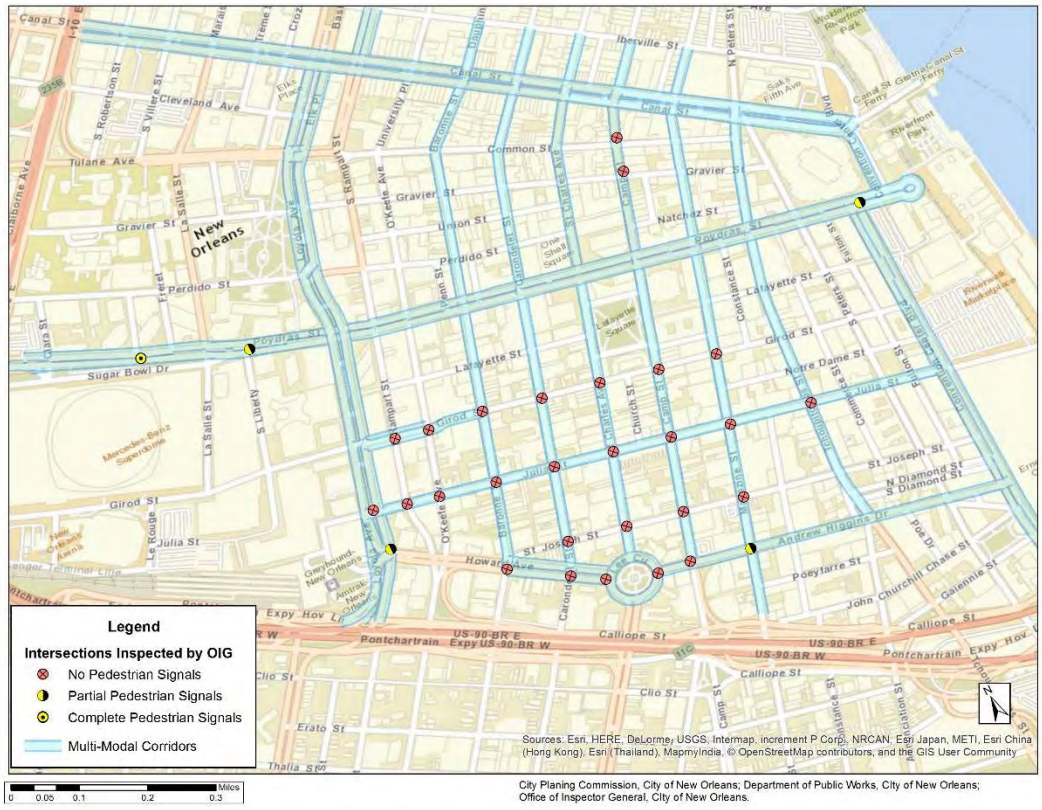
This evidence suggests that the DPW depended on a public reporting system in which only major problems might be reported. Also, the information was filtered through 311 call takers, who might hear and record the information differently from what trained maintenance technicians might notice if they were performing inspections. The DPW's director recognized that relying on citizen self-reporting ensured that information about malfunctioning signals essential to public safety might not be reported or addressed in a timely manner. Asked what maintenance opportunities the DPW might miss by relying solely on 311, the Department's director said that it was certainly possible that issues could have gone unnoticed or unreported for a while.

Structured Survey of Pedestrian Crossing and Traffic Signals

OIG evaluators developed and conducted a structured field survey to obtain accurate information about signal functioning and pedestrian crossing signal infrastructure. Evaluators documented conditions at 32 signalized intersections on local downtown multi-modal corridors that were not part of the Pedestrian Countdown Timers Project. Evaluators recorded the operational condition of signals and noted pedestrian amenities and maintenance issues.

[72] 311 operators categorized the extent of disruption as "entire intersection" or "single light." Sometimes operators did not record the extent of the disruption.

Figure 9. Map of Downtown Intersections not included in the Pedestrian Countdown Timers Project that were inspected by the OIG



Only five of the 32 intersections on downtown multi-modal corridors had pedestrian crossing signals, and only one of those five intersections had pedestrian signal heads on all corners. All pedestrian signals were functioning in four of the five intersections with pedestrian signals.

Evaluators also found non-functioning traffic lights at six intersections (19 percent) and visor-like metal shades above the traffic lights missing at 23 intersections (72 percent).

Not all red, yellow, and green traffic lights were working at downtown intersections, including this intersection at Girod and Baronne streets where the Rouses grocery store and a CVS drug store were located.

Other traffic lights were out at the same corner at Girod and Baronne streets: this traffic signal facing the wrong way on a one-way street was supposed to guide pedestrians. With the light out and no dedicated “ped head,” pedestrians had no guidance on when to cross.

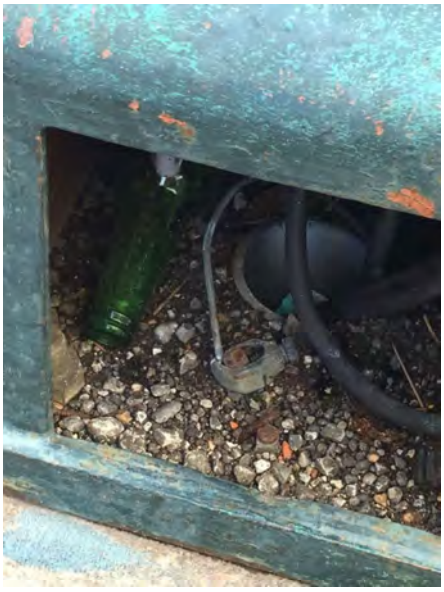
The traffic light that was supposed to guide pedestrians walking toward the Mississippi River on Poydras Street near Le Pavillon Hotel was also not functioning.

Many downtown traffic signals were missing the visor-like shades over the lights, such as this one at the corner of Carondelet and Girod streets.

In addition, seven intersections on Julia Street had no stripes on the roadway to indicate a stop line or crosswalk.

Evaluators also found many traffic signals downtown where the signal base was open or damaged, leaving wires exposed to vandalism, weather, and dirt. Of the 32 intersections evaluators examined, 24 intersections (75 percent), had at least one signal base open. In one case, the signal base was filled with dirt. Two other signal bases were filled with trash.

Traffic signal professionals advise that traffic signal equipment should be kept clean and protected from the elements so that equipment lasts longer and functions more effectively. This traffic signal base at the corner of Howard Avenue and Baronne Street was filled with dirt.



This traffic signal base functioned as a trash can and contained a beer bottle.

RECOMMENDATION 5. THE DEPARTMENT OF PUBLIC WORKS SHOULD DEVELOP AND IMPLEMENT AN INSPECTION PROGRAM FOR CITY INFRASTRUCTURE SUCH AS SIGNALIZED INTERSECTIONS AS THE CORNERSTONE OF A REGULAR MAINTENANCE PROGRAM TO IMPROVE PERFORMANCE, REDUCE MAINTENANCE COSTS, AND PROLONG THE LIFE OF CITY EQUIPMENT.

The City had been gradually replacing and upgrading pedestrian crossing and traffic signal equipment since Hurricane Katrina, and public infrastructure investments should be protected by inspection and maintenance regimes.[73]

The DPW should design an inspection program based on best practices and begin to shift its efforts toward preventive maintenance rather than wait until emergency repairs are necessary.[74] It should develop an inspection form for city infrastructure and equipment such as traffic signals and pedestrian crossing signals, as well as an inspection schedule. Making the switch from emergency repairs to routine maintenance will require an initial investment of repair technician time, but it should ultimately reduce both the inspection and maintenance time required and the number of emergent repairs.

The City should also establish written standards for the functioning of traffic and pedestrian crossing signals and the condition of signalized equipment in New Orleans.

Finally, the City should make the replacement of the sign and signal shop a priority so that the DPW can make new signs and repair signals more quickly and at lower cost. A functioning sign and signal shop could facilitate an effective and efficient signal maintenance plan.

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[73] As the City installs new traffic signal equipment and pedestrian crossing signals it will need to maintain them. The situation is similar to the need to set aside money and create new standards to maintain the many new school buildings built in New Orleans after Hurricane Katrina. In December 2014, voters opted to increase the millage to pay for the upkeep of new school buildings. See http://www.nola.com/education/index.ssf/2014/11/new_orleans_school_property_ta.html.

[74] International Municipal Signal Association, *Traffic Signal Maintenance Handbook* (Rockledge, FL: IMSA, 2010), http://www.imsasafety.org/cert_descrip/tsighdbk.htm. The guide deals with risk management, process and procurement procedures, construction and inspection checklists, preventive maintenance, design modification, asset management, development of a maintenance plan, measuring performance, traffic engineering standards, and worker training. *MUTCD,* Section 4D.02, "Responsibility for Operation and Maintenance," also outlines principles of maintenance. As previously mentioned, many state departments of transportation and municipal departments of streets also have inspection checklists and procedures online that could serve as models.

VII. CONCLUSION

According to New York City's ambitious Vision Zero effort to eradicate pedestrian deaths, pedestrian injuries and deaths are not an unfortunate but inevitable fact of urban life, they are a public policy and design problem to be solved. Pedestrian safety is the result of well-designed urban planning and traffic management policies, regular inspection and maintenance, a commitment to smarter streetscape design, better enforcement of rules and regulations, collaboration with stakeholders, and a commitment of resources.

In New Orleans the dearth of pedestrian crossing signals was due to decision-making by custom rather than considered policy. A single DPW staff member relied on anecdotal experience and "gut calls" to prioritize traffic engineering decisions about what type and how many pedestrian signals were needed, where pedestrian signals should be installed, and when signal infrastructure needed to be repaired. The result was arbitrary departmental practices that discouraged the installation of pedestrian crossing signals and made New Orleans a more dangerous place for pedestrians.

Pedestrian crossing signals are an essential component of pedestrian safety. Best practices, national crash data, and ADA requirements set clear standards for their use and provide evidence that they save lives. The DPW should develop formal, written policies based on best practices and data-driven methods for promoting pedestrian safety.

The DPW recognized these standards when it developed the ADA Transition Plan and its Complete Streets Program Management Plan; it should implement the plans' objectives and recommendations and create a timeline for any unfinished work.

The DPW should also adopt performance measures that match aspirations expressed in the Master Plan, the Complete Streets ordinance, and policy documents such as the Pedestrian Safety Action Plan and the ADA Transition Plan.

It should also find better ways to coordinate efforts with the City Planning Commission, the Mayor's ADA administrator, and to tap expertise on the Mayor's Disability Advisory Council and the Council's Pedestrian and Bicycle Safety Advisory Committee. Establishing permanent, full-time positions for the Complete Streets manager and the pedestrian and bicycle engineer could facilitate these efforts.

A GIS-enabled asset management system could enable the DPW to track key information about signalized intersections. With this information the DPW could develop a data-driven approach to assessing its needs, build a solid preventive maintenance program, track progress toward goals, plan new initiatives, and develop stronger grant proposals.

New Orleans does not have to remain among the worst when it comes to pedestrian safety: policymakers in New Orleans can improve pedestrian safety by taking steps that have been proven effective in other cities.

THE LAND USE PLAN			
Design public spaces and the interface between private and public spaces to be pedestrian friendly. (p. 44, executive summary.)			
Relevant Goal	**Relevant Strategy**	**Relevant Action**	**Time frame**
Promote development that can strengthen the city's tax and job base while serving citizen needs and preserving city character.	Promote clustering of neighborhood retail and services and avoid long corridors of low-density commercial development.	Create a commercial district specifically designed to accommodate and encourage pedestrian-oriented, walkable shopping environments.	2010-2014
	Make downtown a vibrant 24-hour neighborhood and commercial/entertainment district.	Create active, attractive street corridors that promote multi-modal connections between different areas of the CBD, accommodate transportation access and parking demand, and promote a high level of pedestrian traffic and pedestrian amenity.	2010-2014
Strengthen the city's public realm and urban design character	Provide guidance on desired characteristics of new development to property owners and the public.	Re-knit the urban fabric by introducing safe and attractive pedestrian and bicycle routes, better lighting, landscaping and public art to reduce barriers created by highways and arterial roads.	2010-2014
		Expand New Orleans' tradition of lively pedestrian streets to all neighborhoods.	2010-2014
		Locate building entries to promote safe pedestrian movement across streets; to relate to crosswalks and pathways that lead to transit stops; and to encourage walking, biking and public transit use for employment and other travel around the city.	2010-2014
HOW WE PROSPER - ENHANCING PROSPERITY AND OPPORTUNITY			

Animate key walking streets like Julia, Magazine and Royal to encourage convention and Superdome event attendees, French Quarter visitors, medical district employees, Warehouse District gallery visitors, and other to explore other parts of downtown. In the process, all of downtown will become a more competitive place to live, work, shop, visit, and invest. Undertake a series of transit and other transportation initiatives to enhance connections to the city's neighborhoods and the larger city and region. (See p. 79 of executive summary)

Relevant Goal	Relevant Strategy	Relevant Action	Time
Preservation and expansion of established industries	Preserve and expand the tourism industry.	Improve connectivity in downtown and among tourist areas with transit and pedestrian improvements.	2010-2014
		Augment the perception and reality of safety in tourist areas.	2010-2014
A 24-hour downtown to support its role as an economic driver	Enhance transit, pedestrian and bicycle access to and within downtown.	Improve the pedestrian environment throughout downtown.	2010-2014

SUSTAINABLE SYSTEMS - TRANSPORTATION

Establish a "complete streets" policy to provide for pedestrians and bicycles, as well as vehicles on major streets. (See page 91 of executive summary.)

Relevant Goal	Relevant Strategy	Relevant Action	Time
Integration of land-use decision-making with transportation projects	Modify regulations to encourage infill development that supports a vibrant pedestrian environment	Modify zoning regulations to ensure that new development respects and is oriented to the pedestrian.	2010-2014
		Establish Traffic Impact Analysis guidelines that look beyond the development site for pedestrian generators and linkages.	2015-2019
		Provide transit location criteria that support pedestrian comfort and safety for access to and waiting for transit.	2010-2014

Roadways that integrate vehicle transportation with bicycling and walking	Implement the adopted "Complete Streets Policy" for the City of New Orleans which moves people and freight safely while prioritizing the non-motorized used by integrating various transportation modes.	Develop and adopt Complete Streets Guidelines for internal and consultant design engineers in project development.	2010-2014
		Require training on the design of Complete Streets for all design consultants doing business with the City.	2010-2014
		Evaluate sidewalk repair and maintenance ordinances and develop mechanisms for enforcement and betterment system options for property owners.	2010-2014
		Update the City of New Orleans Roadway Design Manual to include the best practices for the accommodation of non-motorized transportation and streetscape improvements	2010-2014
		Plan for and emphasize pedestrian, bicycle and transit facilities linkages through improved design, funding, maintenance, enforcement and education.	2010-2014
		Implement pedestrian improvements for intersections, including ADA accessibility requirements, in areas with transit, pedestrian destinations, and high concentrations of children and elderly	2010-2014
		Build capacity in DPW to track and guide multi modal accommodation in all projects and to coordinate with a transportation planner within the CPC	2010-2014
	Establish a permanent multi modal accommodation position within DPW.	Secure permanent funding for a multi modal accommodation position to track and guide all road, bridge and community facilities capital and maintenance project and coordinate with the transportation planner in CPC, once one is hired.	2010-2014

	Develop a pedestrian plan for the City of New Orleans.	Develop and adopt guidelines to improve the quality of the pedestrian environment throughout the city.	2010-2014
		Implement comprehensive streetscape upgrades to those boulevards not receiving recovery funding.	2015-2019
	Provide significant infrastructure investment to make major boulevards and corridors more attractive and pedestrian-friendly, particularly at transit stops.	DPW should develop and adopt guidelines for pedestrian facilities of all types to improve the quality of the pedestrian environment.	2010-2014
		Implement comprehensive streetscape upgrades to those boulevards that are in need of upgrades.	2015-2019
		Develop a system and procedures for regular maintenance of sidewalk infrastructure.	2015-2019
	Provide significant infrastructure investment to make neighborhood streets more attractive and pedestrian friendly.	Funding for 'complete streets' construction and retrofit/repair projects.	2010-2014
		In coordination with street repaving projects, undertake a comprehensive streetscape improvement effort.	2010-2014
		Reinforce existing efforts to improve pedestrian infrastructure along neighborhood streets.	2010-2014
		Develop a system and procedures for regular maintenance of sidewalk infrastructure.	2010-2014
		Review, update and implement the New Orleans ADA Transition Plan.	2010-2014

		Support RTA's effort to continue to improve safety for transit passengers and RTA employees, pedestrians and vehicular traffic along streetcar lines and at or by bus and streetcar stops.	2010-2014
	As part of the comprehensive bicycling plan, create a comprehensive, connected citywide network of bike lanes, multi-use paths, and bike boulevards to safely accommodate bicyclists.	Establish a Pedestrian and Bicycle Safety Advisory Committee to assist in reviewing city projects, policies and plans and engage bicycle users.	2010-2014
		Develop the Lafitte Greenway as a key bicycle and pedestrian corridor.	2010-2014
Enhanced intercity transportation with upgraded airport, better passenger rail service, and ultimately, regional high-speed rail.	Improve connectivity and the environment for users of the Union Passenger Terminal. (UPT).	Identify a priority location for pedestrian access and visibility for a UPT streetcar stop as part of streetcar system expansion plans.	2015-2019

SUSTAINABLE SYSTEMS - ENVIRONMENTAL QUALITY			
Promotion and enhancement of sustainable development patterns through land use policies that emphasize transportation choice, walkability, compact development, and green infrastructure. (See p. 107 of executive summary.)			
Relevant Goal	**Relevant Strategy**	**Relevant Action**	**Time**
A physical environment characterized by Smart Growth patterns of development	Encourage mixed-use, walkable and 'bike-able" neighborhoods	Repair sidewalks, street lighting, and provide streetscape enhancements to encourage pedestrian activity.	2015-2019

The City's adopted budget book contained performance measures for each department each year. The performance measures for the DPW did not include anything specifically related to pedestrians, and vision statements in 2011 and 2012 that declared the intent to develop performance measures that tracked the Master Plan were dropped in subsequent years. Meanwhile, the City Planning Commission had no performance measures that related to the Master Plan.

Year	Agency	Measure categories
2015	**DPW Vision Statement**	Be a professional, customer-focused public service organization that is trusted and responsive to the needs of the community.
	DPW	Percent of streetlights functioning
		Number of streetlight outages restored
		Percent of 311 streetlight service requests completed within 90 days
		Number of pothole repairs completed
		Percent of catch basins cleaned
		Number of catch basins cleaned
		Percent of 311 abandoned vehicle service requests completed within 30 days
		Number of parking citations issued
		Number of vehicles booted
		Number of vehicles towed
		Number of permanent street name signs installed
		Number of permanent traffic signs installed
		Percent of DPW construction projects delivered on or ahead of schedule
		Percent of DPW construction project contract value awarded to Disadvantaged Business Enterprises
	CPC Vision Statement	no vision statement
	City Planning Commission	Average number of days to docket a Board of Zoning Adjustment variance application for public hearing
		Average number of days to docket a completed subdivision application
		Average number of days to schedule a completed zoning docket application for a public hearing before the CPC
2014	**DPW Vision Statement**	A professional, customer-focused public service organization that is trusted and responsive to the needs of the community.
	DPW	Percent of streetlights functioning
		Number of streetlight outages restored
		Percent of 311 streetlight service requests completed within 90 days
		Number of pothole repairs completed

		Number of catch basins cleaned
		Percent of 311 abandoned vehicle service requests completed within 30 days
		Number of parking citations issued
		Number of vehicles booted
		Number of vehicles towed
		Number of permanent traffic signs installed
		Number of permanent street name signs installed
		Percent of DPW construction projects delivered on or ahead of schedule
		Percent of DPW construction project contract value awarded to Disadvantaged Business Enterprises
		Average number of days to close 311 abandoned vehicle service requests
		Number of employer sites engaged through Summer Youth Employment Programs
	CPC Vision Statement	no vision statement
	City Planning Commission	Average number of days to docket a Board of Zoning Adjustment variance application for public hearing
		Average number of days to docket a completed subdivision application
		Average number of days to schedule a completed zoning docket application for a public hearing before the CPC
2013	**DPW Vision Statement**	A professional, customer-focused public service organization that is trusted and responsive to the needs of the community.
	DPW	Number of potholes filled
		Number of catch basins cleaned
		Number of off-system bridges inspected
		Percent of DPW construction projects delivered on or ahead of schedule
		Average number of calendar days to close 311 abandoned vehicle calls
		Number of streetlights repaired
	CPC Vision Statement	no vision statement
	City Planning Commission	Average number of days to schedule a completed application for a public hearing before the CPC
		Percentage of Board of Zoning Adjustments decisions appealed to Civil District Court
		Number of notifications sent alerting adjacent property owners of a pending land use action
2012	**DPW Vision Statement**	In order to better serve our residents, the Department of Public Works will align its operations with the City Master Plan while incorporating best management practices, developing tangible performance metrics and creating short-term and long-term internal goals.

	DPW	Percent of Abandoned Vehicle Calls Closed within 45 Days
		Number of Catch Basins Cleaned
		Number of Potholes Filled
		Percent of Routine Street Light Repairs within 10 Working Days of Receiving the Work Order
		Percent of Time and Equipment (T&E) Street Light Repairs within 30 Working Days of Receiving the Work Order
		Percent of Traffic Sign Repair, Replacement or Installation Requests Resolved within 48 Hours of Reporting
	CPC Vision Statement	no vision statement
	City Planning Commission	Percent of Citizen Phone Calls Responded to within 24 Hours
		Percent of Site Plan Review Applications Reviewed Administratively Within 30 Days
		Percentage of Demolition Applications Reviewed within 30 Days
2011	**DPW Vision Statement**	Over the next 2-4 years, the Department will develop master plans to align its operations […] with the City Master Plan. Each operational master plan will focus on best management practices, recommend and develop meaningful metrics, and outline short term and long term goals.
	DPW	# of Street Lights Repaired
		# of Potholes Filled
		# of Catch Basins Cleaned
	CPC Vision Statement	no vision statement
	City Planning Commission	% of Citizen Phone Calls Responded to Within 24 Hours
		% of Site Plan Review Applications Reviewed Administratively Within 30 Days
		% of Demolition Applications Reviewed Within 30 Days

Meanwhile, the Jefferson Parish Bicycle Master Plan included potential performance measures that were geared toward non-vehicular travel. The Jefferson Parish Bicycle Master Plan has been incorporated into the parish's comprehensive plan.[75]

Performance Measures suggested in the Jefferson Parish Bicycle Master Plan
Linear feet of new or reconstructed sidewalks
Miles of new or restriped on-street bicycle facilities
Number of new or reconstructed curb ramps
Number of new or repainted crosswalks
Number of new street trees/percentage of streets with tree canopy
Percentage of completion of proposed bikeway network
Percentage of transit stops with shelters
Percentage of transit stops accessible via sidewalks and curb ramps
Decrease in rate of crashes, injuries, and fatalities by mode
Transportation mode shift: more people walking, bicycling and taking transit
Rate of children walking or bicycling to school
Vehicle Miles Traveled (VMT) or Single Occupancy Vehicle (SOV) trip reduction
Satisfaction levels as expressed on customer preference surveys
Number of bridges retrofitted with pedestrian sidewalks and lighting
City funding dedicated to pedestrian safety (infrastructure, training, enforcement and education)

[75] *Jefferson Parish Bicycle Master Plan* (Jefferson Parish, LA: Regional Planning Commission, December 2013) 64. The last two performance measures in the chart were suggested by the RPC principal planner in an interview.

NATIONAL TIMELINE

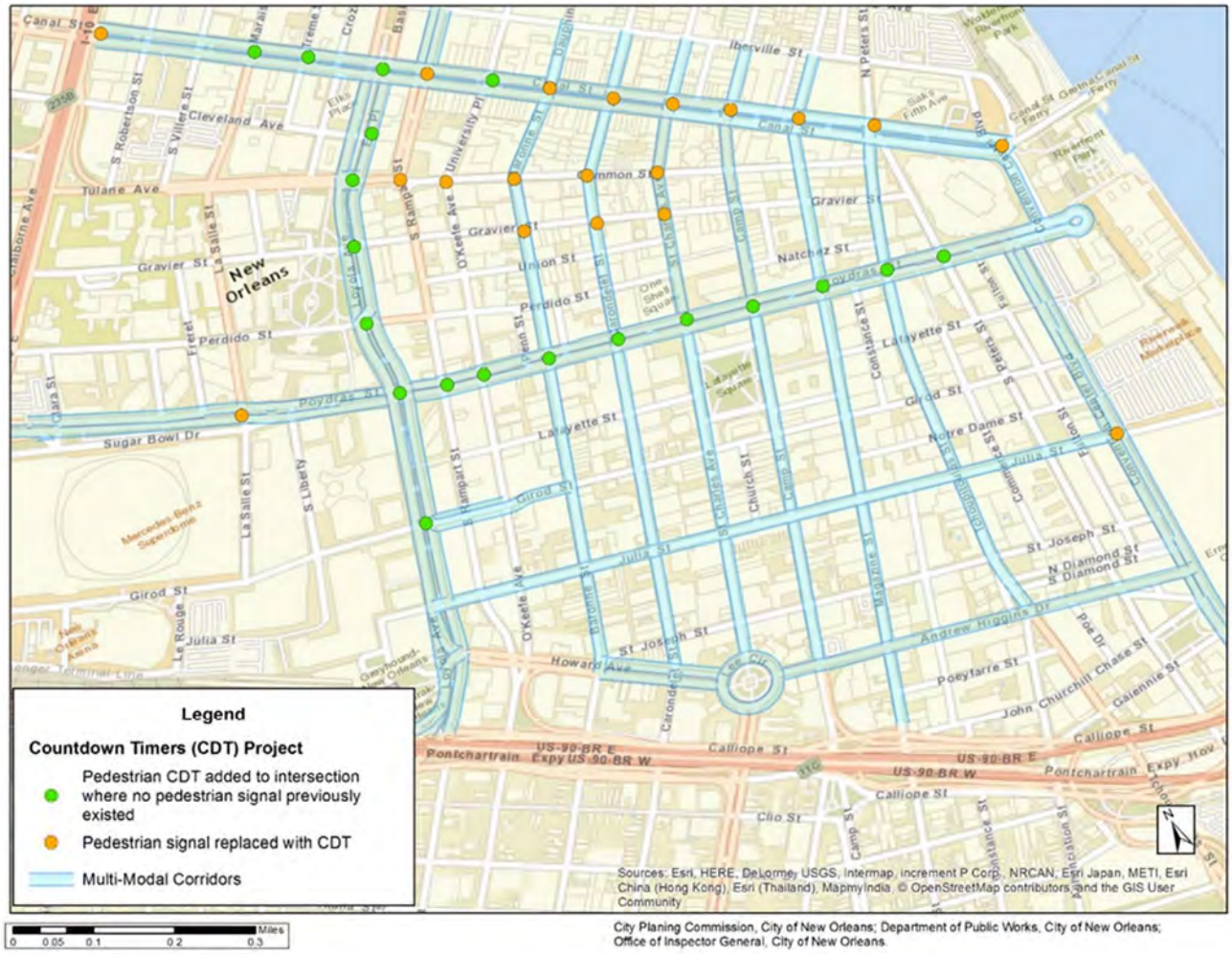
1977	Pedestrian crossing signals with walking person and upraised orange hand symbols become the new standard, replacing signals with the words “walk” and “don’t walk”.
July 1990	Americans with Disabilities Act is signed.
1996	Pedestrian countdown timers are used for the first time in a demonstration project in Hampton, Va.
1999	Advisory committee chartered to develop recommendations for rules on how to help people with mobility challenges travel more freely on public streets and sidewalks.
2002	Draft of the Public Rights of Way Accessibility Guidelines (PROWAG) released.
2003	Pedestrian countdown timers appear in the Manual on Uniform Traffic Control Devices (MUTCD).
2005	Revised draft of the Public Rights of Way Accessibility Guidelines (PROWAG) released for purposes of developing a cost analysis. Information listed in the PROWAG draft is considered best practices by the federal government.
2009	The Federal Highway Administration deems pedestrian countdown signals as a “highly effective” means to improve pedestrian safety.
2009	Countdown Timers become the standard pedestrian crossing signal in the federal government’s Manual on Uniform Traffic Control Devices (MUTCD).
July 2011	Proposed rules for Public Rights of Way Accessibility Guidelines (PROWAG) released.
January 2014	Newly elected New York Mayor Bill de Blasio announces “Vision Zero” plan to eliminate pedestrian injuries and deaths.
2016	U.S. Access Board is conducting a financial analysis of the impact of the Public Rights of Way Accessibility Guidelines (PROWAG).
Early 2017	Public Rights of Way Accessibility Guidelines (PROWAG) are expected to be published. Once the rules are published, the U.S. Department of Justice and the U.S. Department of Transportation will begin the process of formally adopting them.

LOCAL TIMELINE

1962	"Pedestrian control signals" displaying the words WALK and DON'T WALK appear in Louisiana law.
1991	The person who is now the City's Chief Traffic Engineer begins working for the DPW in New Orleans. The informal custom that "ped heads" can only be installed when there is an "all-pedestrian phase" in which traffic lights are red in all directions, was already a longstanding practice when he arrived.
2002	The City of New Orleans enters a consent decree with the U.S. Department of Justice because of ADA violations.
2003	The Highway Safety Research Group releases traffic safety data that includes pedestrians for the first time. After seeing this 1999-2002 data, the New Orleans Regional Planning Commission realizes that ten times as many pedestrians die on New Orleans roads as bicyclists. The NORPC makes pedestrian safety a priority area.
2004	An engineer begins working for the City on active transportation/pedestrian and bicycle issues. The position is shared between city departments and is funded first by the Centers for Disease Control and later by Entergy Corp. After ten years of grant funding, the City fails to make it a full-time, permanent position; the job is now a part-time, year-to-year position.
2007	The City of New Orleans, the DPW and the Regional Planning Commission submit the first version of their application to the Louisiana Department of Transportation and Development for federal money to add countdown timers to intersections for the first time or upgrade existing pedestrian crossing signals to countdown timers. The Pedestrian Countdown Timers Project is delayed for years.
2008	The current Chief Traffic Engineer is named to his position at the DPW.
August 2010	The Plan for the 21st Century: New Orleans 2030 is adopted. The document, better known as the Master Plan, notes the dearth of pedestrian crossing signals in New Orleans. It calls for many steps to make the city more walkable, including adding pedestrian crossing signals to more intersections.
August 2010	The committee charged with drafting the City's ADA Transition Plan begins its work.
July 2011	ADA consent decree with the City of New Orleans expires.

2011	The City Planning Commission hires a transportation planner as called for in the Master Plan, but the position does not work out as envisioned.
December 2011	The City Council adopts Complete Streets ordinance.
2012	DPW changes its mission statement to reflect Complete Streets aspirations.
December 2012	The DPW releases its Complete Streets Program Management Plan. The Plan declares that pedestrian crossing signals should be a "high-priority" on streets that provide intra-neighborhood connections, cross-town and inter-neighborhood connections (meaning avenues and boulevards). It states that pedestrian crossing signals should be "required" on streets that provide regional and metropolitan connections (throughways).
June 2013	The DPW publishes the City of New Orleans ADA Transition Plan.
mid-2013	Design work begins on the Pedestrian Countdown Timers Project.
Spring 2015	The City Planning Commission replaces transportation planner and hires an additional one.
May 2015	The City Council passes the Comprehensive Zoning Ordinance.
August 2015	The City Council seats the Pedestrian and Bicycle Safety Advisory Committee.
June 2015	Final design plans for the Pedestrian Countdown Timers Project are signed.
November 2015	The DPW updates its General Specifications for Street Paving for the first time since 2001 and sends them to the City Council for adoption. The guidelines make no mention of ADA-compliant pedestrian crossing signals because they are not standard on every project.
August 2015	Short-term goals in the Master Plan are supposed to have been achieved.
Spring 2016	Work on the Pedestrian Countdown Timers Project is expected to begin.

APPENDIX D. MAP OF THE PEDESTRIAN COUNTDOWN TIMERS PROJECT



APPENDIX E. MAP OF DOWNTOWN MULTI-MODAL CORRIDORS FROM THE CZO

This map from the City's Comprehensive Zoning Ordinance shows downtown "multi-modal" streets where city planners expect to see people traveling in a variety of modes of transport such as cars, trucks, buses, streetcars, bicycles and pedestrians. These streets would seem to be prime candidates for pedestrian crossing signals, pavement striping and strong signage to make sure all street users know where and when to use the road.

Inspectors visited intersections on September 30 and November 4, 2015 to examine the condition of intersections and protections for pedestrians and bicyclists. Inspectors worked in teams; recorded observations on structured, pre-designed forms; and noted detailed observations on maps. When appropriate, they used a drawing of a basic X-shaped intersection, with corner A located in the uptown lakeside quadrant of the intersection. When intersections were more complex, they recorded their observations on a printed Google Map and assigned their own letters to corners also starting at the uptown lakeside corner.

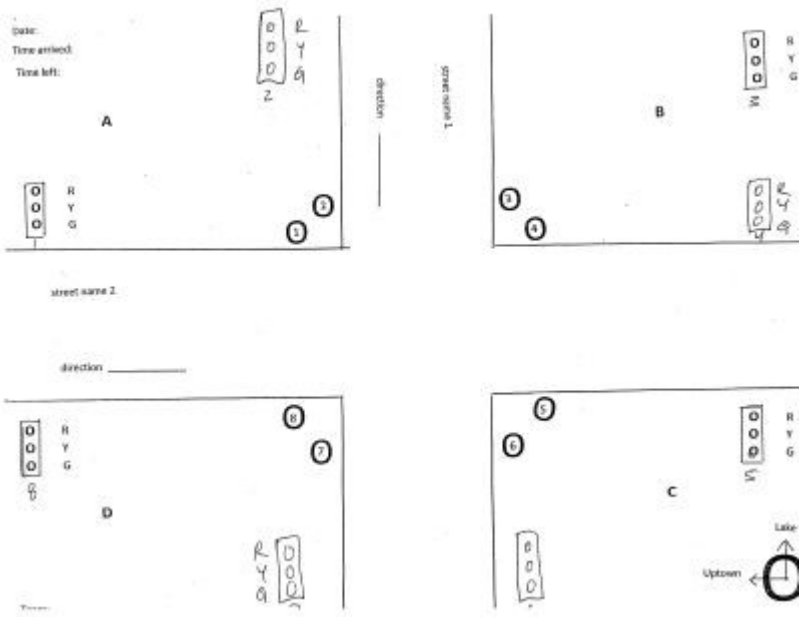
A. Main intersection inspection form

Date and time of inspection **Team**			
Intersection - add M if median			
Street one (lake to river)(M?)			
Street two (Uptown to FQ) (M?)			
Traffic signal and Ped walk signal			
All RYG traffic bulbs LED?	Yes	No	
Hoods on all traffic lights?	Yes	No	
If ped signal, what type?	N/A	PWS	CDT
Is ped signal bright enough?	Yes	No	
Is there a sign explaining ped signal?	Yes	No	
Traffic signals in the median/island?	N/A	Yes	No
Pedestrian signals in signal/island?	N/A	Yes	No
Signage			
Name sign for Street one?	Yes	No	
Name sign for Street two?	Yes	No	
One-way signs where appropriate?	N/A	Yes	No
If no, which one is missing?			
Is there a yield to pedestrians sign?	Yes	No	
If no, mark which corner(s) you think it should go on based on turning traffic	A	B C	D
Other street signs present (please list signs and location)			
Curbs			
Wheelchair ramps on all corners?	Yes	No	
With colored, textured plastic?	Yes	No	

If there is a median, are there curb cuts and ramps on the median?	N/A	Yes	No	
Striping				
Is intersection striping bright and in good condition? Please rate: 1 (no markings) to 4 (fresh paint)		1	2	3 4
Painted crosswalk?	Yes	No		
If so, what type?	Double bars (=)			Zebra (IIIIIII)
Is there a clear stop line several feet back from the crosswalk?	Yes	No		
Quality of Crossing Environment				
Are there potholes or cracks in the pavement of the crosswalk?	Yes	No		
If yes, please describe and note any unusual surfaces, such as cobblestones or old tracks				
Other factors				
Is there a bus or streetcar stop at the intersection? please list corner and street name				
Bike lane/icon on street 1?	Bike lane	bike icon	n/a	
Bike lane/icon on street 2?	Bike lane	bike icon	n/a	
Dedicated turn lane, st. 1, direction				
dedicated turn lane, st. 2, direction				
Anything at the intersection that obscures views of cars or pedestrians? Please describe, note corner and street location				
Please describe anything noteworthy about the general condition of intersection				
Potential sources of pedestrians near intersection, i.e., schools, museums, hotels, grocery stores, apartment buildings, etc. Please describe and list addresses if possible or draw on map				
General observations about users				
Do people seem to be able to make it to the other side before the light turns?	Yes	No		
Are cars yielding to pedestrians?	Yes	No		

Please describe any dangerous interactions or illegal behavior	
Describe anything else of note about the intersection. Also, any special populations, such as children, the elderly, people with mobility impairments, etc.	

B. Structured observation form:

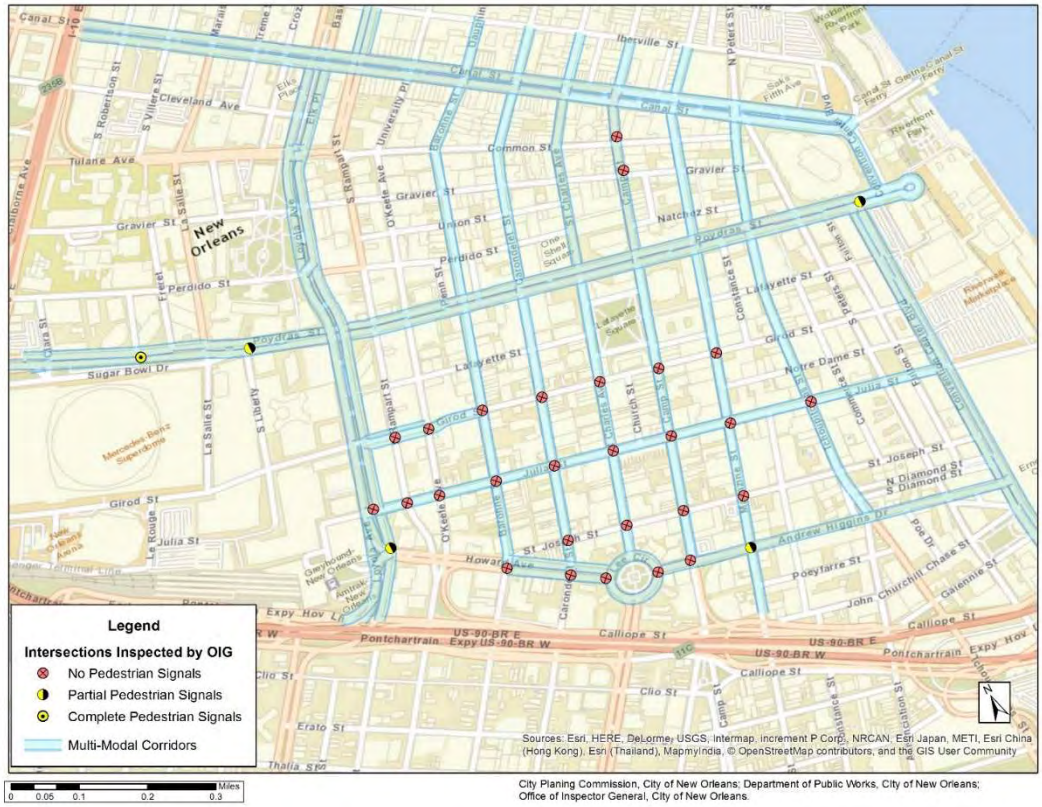


C. Form for inspecting the condition of the traffic signal base. Inspectors noted if the signal base was damaged, open, or had wires exposed.

	Street #1	Street #2	A	B	C	D	Notes
1	Convention Center Blvd. 2	Poydras (by Harrah's and WTC coming from ferry)					
2	Howard	Carondelet					
3	Howard/Lee Circle	St. Charles					
4	Andrew Higgins	Magazine					
5	Magazine	St. Joseph					
6	Convention Center Blvd. - 1	Poydras					
7	Gravier	Camp					
8	Common	Camp					

9	Julia	Magazine
10	Julia	Tchoupitoulas
11	Julia	Carondelet
12	Julia	St. Charles
13	Julia	Camp
14	Howard	Loyola
15	Carondelet	Girod
16	Carondelet	St. Joseph
17	St. Charles	St. Joseph
18	St. Charles	Girod
19	Camp	St. Joseph
20	Camp	Girod
21	Magazine	Girod
22	N. Liberty	Poydras
23	S. Robertson	Poydras
24	Girod	S. Rampart
25	Girod	O'Keefe
26	Girod	Baronne
27	Julia	Loyola
28	Julia	Rampart
29	Julia	O'Keefe
30	Julia	Baronne
31	Howard	Baronne
32	Camp	Andrew Higgins

D. Map of Intersections inspected by OIG.



The new South Market District development included wide sidewalks along Girod Street, and lots of shops and restaurants, but no pedestrian signals.

The intersection of Girod and O'Keefe streets between Rouses and South Market District also included landscaping and a bicycle rack, but no pedestrian signals.

The City of New Orleans often used a small, backward-facing traffic signal such as the one on the right to communicate with pedestrians. Such signals were not standard. A dedicated pedestrian "ped head" signal reminds cars that pedestrians will be crossing, and a countdown timer tells pedestrians how much time they have to cross the street.

The lack of signs and dedicated pedestrian signals can make pedestrians wary when crossing the street.

Other downtown traffic signal bases had exposed wires.

Homemade covers protected signal equipment at some downtown intersections.

This signal base cover was held in place with electrical tape.

City Ordinance section 2-1120(8)(b) provides that a person or entity who is the subject of a report shall have 30 days to submit a written explanation or rebuttal of the findings before the report is finalized, and that such timely submitted written explanation or rebuttal shall be attached to the finalized report.

An Internal Review Copy of this report was distributed on September 13 to the entities who were the subject of the evaluation in order that they would have an opportunity to comment on the report prior to the public release of this Final Report.

The City completed the OIG Management Response Form, which has been appended to this report.

OFFICE OF INSPECTOR GENERAL

CITY OF NEW ORLEANS

MANAGEMENT RESPONSE FORM

PLEASE COMPLETE THIS FORM AND RETURN AS SPECIFIED BELOW. SUPPLY YOUR RESPONSES IN THE SHADED BOXES.

PLEASE INDICATE YOUR AGREEMENT OR DISAGREEMENT WITH EACH OF THE FOLLOWING RECOMMENDATIONS BY SELECTING A RESPONSE FROM THE DROPDOWN BOX. IF YOU *REJECT* OR *PARTIALLY ACCEPT* THE RECOMMENDATION, PLEASE EXPLAIN WHY IN THE SPACE PROVIDED. PLEASE DESCRIBE EACH ACTION YOUR AGENCY WILL TAKE TO IMPLEMENT THE RECOMMENDATION, OR FIX THE PROBLEM, ALONG WITH THE NAME AND CONTACT INFORMATION OF THE PERSON(S) RESPONSIBLE FOR THE ACTION AND THE COMPLETION DATE (IF ONE IS ALREADY NOT PROVIDED).

RETURN THIS COMPLETED FORM TO BECKY MOWBRAY AT rmowbray@nolaoig.gov BY (THURSDAY, OCT. 13, 2016).

ENTER NAME HERE:

RECOMMENDATION #1 REQUIRING IMMEDIATE ACTION:	RESPONSIBLE PERSON: (NAME AND CONTACT)	RESPONSE CHOICE (SELECT ONE):
1. THE CITY SHOULD DEVELOP AND IMPLEMENT A PEDESTRIAN CROSSING SIGNAL POLICY THAT INCREASES THE NUMBER OF PEDESTRIAN CROSSING SIGNALS IN COMPLIANCE WITH TRAFFIC ENGINEERING STANDARDS AND THE DIRECTIVES OF THE COMPLETE STREETS ORDINANCE.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	Accept
IF YOU *REJECT* OR *PARTIALLY ACCEPT* RECOMMENDATION #1, PLEASE EXPLAIN WHY:		
DESCRIBE THE ACTIONS YOU WILL TAKE TO IMPLEMENT RECOMMENDATION #1 OR FIX THE PROBLEM:	RESPONSIBLE PERSON:	COMPLETION DATE:
1.1 DPW ALREADY HAS A POLICY BASED ON THE REQUIREMENTS CONTAINED IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THAT IS IN COMPLIANCE WITH THE CITY'S COMPLETE STREETS POLICY TO DETERMINE THE APPROPRIATE PEDESTRIAN CROSSING SIGNAGE, STRIPING, AND SIGNALIZATION. WILL ADD THIS TO THE DPW POLICY LETTER BOOK.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	1 DEC 2016
1.2		
1.3		
1.4		

OFFICE OF INSPECTOR GENERAL

CITY OF NEW ORLEANS

RECOMMENDATION #2 REQUIRING IMMEDIATE ACTION:	RESPONSIBLE PERSON: (NAME AND CONTACT)	RESPONSE CHOICE (SELECT ONE):
2. THE CITY SHOULD BUILD INTERNAL ORGANIZATIONAL STRUCTURES DESIGNED TO ACHIEVE THE PEDESTRIAN GOALS IN THE MASTER PLAN AND COMPLETE STREETS ORDINANCE AND MAKE NEW ORLEANS STREETS SAFER FOR ALL STREET USERS.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	Accept
IF YOU *REJECT* OR *PARTIALLY ACCEPT* RECOMMENDATION #2, PLEASE EXPLAIN WHY:		
DESCRIBE THE ACTIONS YOU WILL TAKE TO IMPLEMENT RECOMMENDATION #2 OR FIX THE PROBLEM:	RESPONSIBLE PERSON:	COMPLETION DATE:
2.1 THE CITY IS RESEARCHING BEST PRACTICES FOR AMDINISTRATION OF AND COMPLIANCE WITH THE COMPLETE STREETS POLICIES.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	DEC 1, 2016
2.2BY CAO POLICY MEMORANDUM, THE CITY HAS ESTABLISHED THE COMPLETE STREETS WORKING GROUP TO MEET REGULARLY TO AND DEVELOP GUIDANCE ON COMPLETE STREET POLICIES	JEFFREY HEBERT, CAO	ON-GOING
2.3		
2.4		
2.5		

OFFICE OF INSPECTOR GENERAL

CITY OF NEW ORLEANS

RECOMMENDATION #3 REQUIRING IMMEDIATE ACTION:	RESPONSIBLE PERSON: (NAME AND CONTACT)	RESPONSE CHOICE (SELECT ONE):
3. THE CITY OF NEW ORLEANS SHOULD ENSURE THAT PUBLIC INVESTMENTS IN INFRASTRUCTURE ARE COMPLIANT WITH ADA STANDARDS, AND THE DEPARTMENT OF PUBLIC WORKS SHOULD IMPLEMENT ITS ADA TRANSITION PLAN.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	Accept
IF YOU ***REJECT*** OR ***PARTIALLY ACCEPT*** RECOMMENDATION #3, PLEASE EXPLAIN WHY:		
DESCRIBE THE ACTIONS YOU WILL TAKE TO IMPLEMENT RECOMMENDATION #3 OR FIX THE PROBLEM:	RESPONSIBLE PERSON:	COMPLETION DATE:
3.1 ALL DPW PROJECTS ARE REVIEWED TO ENSURE THAT THEY ARE COMPLIANT WITH CURRENT ADA STANDARDS.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	IMPLEMENTED AS OF 2002
3.2THE CITY'S ADA TRANSITION PLAN HAS BEEN PUBLISHED AND IS BEING IMPLEMENTED IN ACCORDANCE WITH TITLE II OF THE ADA.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	IMPLEMENTED AS OF 2013
3.3		
3.4		
3.5		

Pedestrian Crossing Signals
Sept. 13, 2016

Management Response for: Lt. Col. Mark Jernigan
Page 4 of 5

OFFICE OF INSPECTOR GENERAL

CITY OF NEW ORLEANS

RECOMMENDATION #4 REQUIRING IMMEDIATE ACTION:	RESPONSIBLE PERSON: (NAME AND CONTACT)	RESPONSE CHOICE (SELECT ONE):
4. THE CITY SHOULD DEVELOP A GIS-ENABLED ASSET MANAGEMENT SYSTEM FOR TRAFFIC EQUIPMENT AND OTHER STREET INFRASTRUCTURE.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	Accept
IF YOU *REJECT* OR *PARTIALLY ACCEPT* RECOMMENDATION #4, PLEASE EXPLAIN WHY:		
DESCRIBE THE ACTIONS YOU WILL TAKE TO IMPLEMENT RECOMMENDATION #4 OR FIX THE PROBLEM:	RESPONSIBLE PERSON:	COMPLETION DATE:
4.1 A GIS-ENABLED ASSET MANAGEMENT SYSTEM ALREADY EXISTS FOR STREETLIGHTS.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	COMPLETE AS OF 2011 AND UPDATED ANNUALLY
4.2 A BUDGET OFFER WILL BE SUBMITTED DURING THE 2018 BUDGET DEVELOPMENT CYCLE TO CONVERT THE SPREADSHEET OF TRAFFIC SIGNALS THAT CURRENTLY EXISTS INTO A GIS-ENABLED DATABASE.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	1 AUG 2017
4.3A GIS-ENABLED ASSET MANAGEMENT SYSTEM ALREADY EXISTS FOR DRAINAGE CATCH BASINS.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	COMPLETE AS OF 2012
4.4A GIS-ENABLED ASSET MANAGEMENT SYSTEM ALREADY EXISTS FOR METERED PARKING SPACES.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	COMPLETE AS OF 1 JUN 2016
4.5A GIS-ENABLED ASSET MANAGEMENT SYSTEM ALREADY EXISTS FOR ROADWAY PAVEMENT.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	COMPLETE AS OF 1 JUN 2016

OFFICE OF INSPECTOR GENERAL

CITY OF NEW ORLEANS

RECOMMENDATION #5 REQUIRING IMMEDIATE ACTION:	RESPONSIBLE PERSON: (NAME AND CONTACT)	RESPONSE CHOICE (SELECT ONE):
5. THE DEPARTMENT OF PUBLIC WORKS SHOULD IMPLEMENT AN INSPECTION PROGRAM FOR CITY INFRASTRUCTURE SUCH AS SIGNALIZED INTERSECTIONS AS THE CORNERSTONE OF A REGULAR MAINTENANCE PROGRAM TO IMPROVE PERFORMANCE, REDUCE MAINTENANCE COSTS, AND PROLONG THE LIFE OF CITY EQUIPMENT.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	Accept
IF YOU *REJECT* OR *PARTIALLY ACCEPT* RECOMMENDATION #5, PLEASE EXPLAIN WHY:		
DESCRIBE THE ACTIONS YOU WILL TAKE TO IMPLEMENT RECOMMENDATION #5 OR FIX THE PROBLEM:	RESPONSIBLE PERSON:	COMPLETION DATE:
5.1 DPW IS IN THE PROCESS OF DEVELOPING AND IMPLEMENTING A PREVENTIVE MAINTENANCE PROGRAM FOR TRAFFIC SIGNALS AND SCHOOL ZONE FLASHING BEACONS WITH EXISTING STAFF AND IS PLANNING TO DEDICATE ADDITIONAL RESOURCES TO THIS WORK IN 2017.	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	JAN 1, 2017
5.2	MARK JERNIGAN MDJERNIGAN@NOLA.GOV	DEC 1, 2016
5.3		
5.4		
5.5		