



Paula Hunter is the Traffic Signal Plan Reviewer & Coordinator for Transportation & Drainage Operations and has been with Houston Public Works for over 21 years. She is responsible for coordinating and reviewing all Traffic Signal Projects submitted to HPW.

Paula Hunter

Graduate Engineer,
Transportation & Drainage Operations
Houston Public Work

Background & Education

- ▶ Paula Hunter is a native of Springfield, Illinois and resident of Houston Texas.
- ▶ She is a Graduate of Alabama A&M University where she obtained a BS in Civil Engineering.
- ▶ She has been with HPW for over 21 years and in her tenure has been responsible for reviewing and coordinating all traffic signal plan reviews, traffic signal timing, school zone timing, traffic signal investigations and numerous other task.
- ▶ Paula has also worked for such governmental Agencies as:
Alabama Department of Transportation(Graduate Civil Engineer/Assistant Project Engineer
- ▶ Illinois Department of Transportation(Bureau of Design & Planning and Programming).
- ▶ Paula is a mother of one and her daughter is currently attending Sam Houston State University, majoring Graphic's Design.
- ▶ Paula's Hobbies include Interior Design, Collage Art and Creating Handmade Jewelry

Introduction

- ▶ The Purpose of this Presentation is to share highlights of Houston's Public Works latest revisions to Chapter 15.
 - ❑ Traffic Signal Review Requirements
 - ❑ Traffic Signal Plan Review Submittals and Process
 - ❑ Highlights of Chapter 15 Revisions
 - ❑ Bicycle Facilities
 - ❑ Newly Added Chapter 17
 - ❑ City of Houston - TXDOT Agreement: Operation & Maintenance of Traffic Signal Infrastructure
 - ❑ Standard Drawings & Specifications(HPW Links)

Traffic Signal Review Requirements

- ▶ Requirements for reviewed and approved plans not constructed within a 2-year period(Section 15.11)
- ▶ If any portion of a traffic signal installation is being modified, the City requires the entire signal be upgraded to current standards.
- ▶ Permission to deviate from these standards must be received prior to submission on construction drawings for review and approval

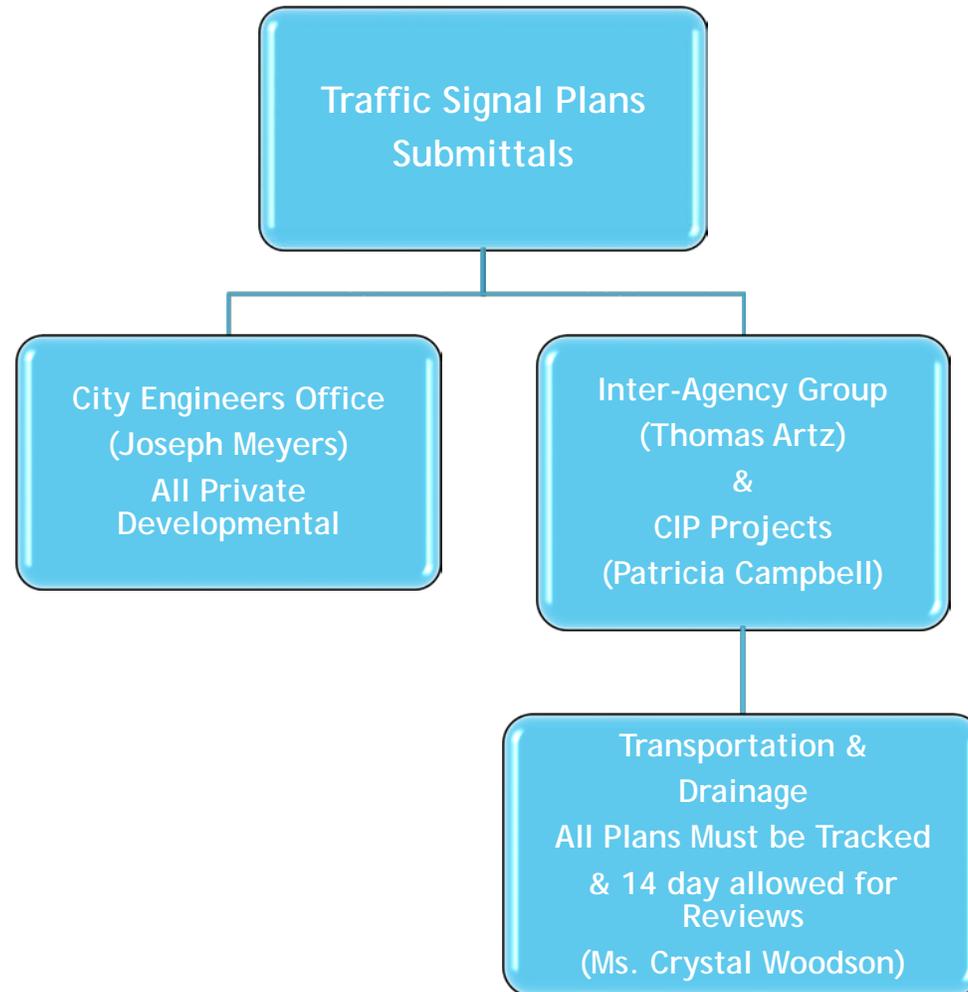


Traffic Signal Review Requirements

- ▶ ALL Traffic Signal Plan Sets Must include the follow:
 - ✓ Title Sheet
 - ✓ General Notes & Responsibility
 - ✓ Traffic Signal Plan Sheet(s)
 - ✓ Special(or non-standard) Detail Sheet(s) (as required)
 - ✓ Plan and Profile Sheets (as required)
 - ✓ Pavement Marking Sheet(s) (as required).
 - ✓ Signing Plan Sheet(s) (as required)
- ▶ 11-inch by 17-inch plan sheet showing locations of curb lines,
- ▶ **WB-50** turn movements superimposed over the intersection. Not Required for Mylar's
- ▶ City of Houston Standard Traffic Drawings shall NOT be included as a part of the plan set

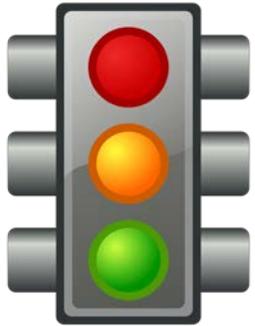


Traffic Signal Plan Review Process



Highlights of Chapter 15 Revisions

Traffic Signal Hardware Design



❖ Traffic Signal Heads(Section E)

- Traffic signal heads required for each through lane
- Traffic signal heads position to travel lane(Center of Lane)
- Distance between Signal Heads.
- Signal head orientation and alignment(Horizontal)

Traffic Signal Head & Sign Placements(Appendix 1)

- See Figures 1-11,for Traffic Signal Heads & Signs related to various configurations as shown in Appendix 1

Highlights of Chapter 15 Revisions

Traffic Signal Head Placement(Appendix 1). Examples

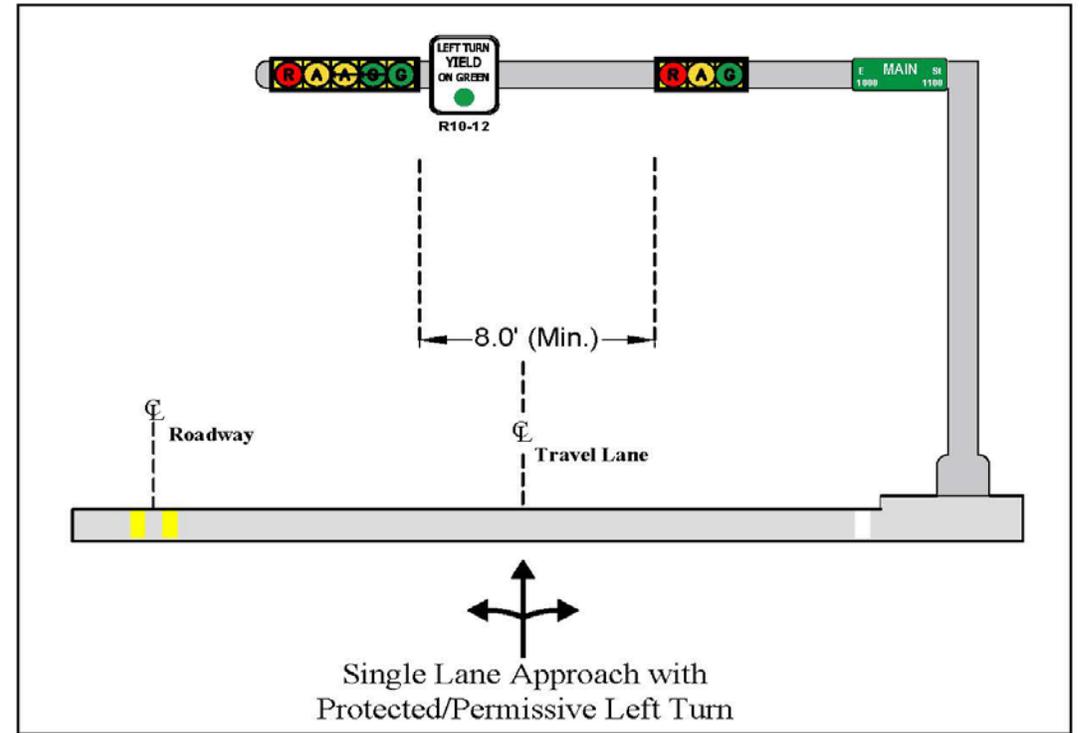


Figure 2

Highlights of Chapter 15 Revisions

Traffic Signal Head Placement (Section E & Appendix 1). Examples

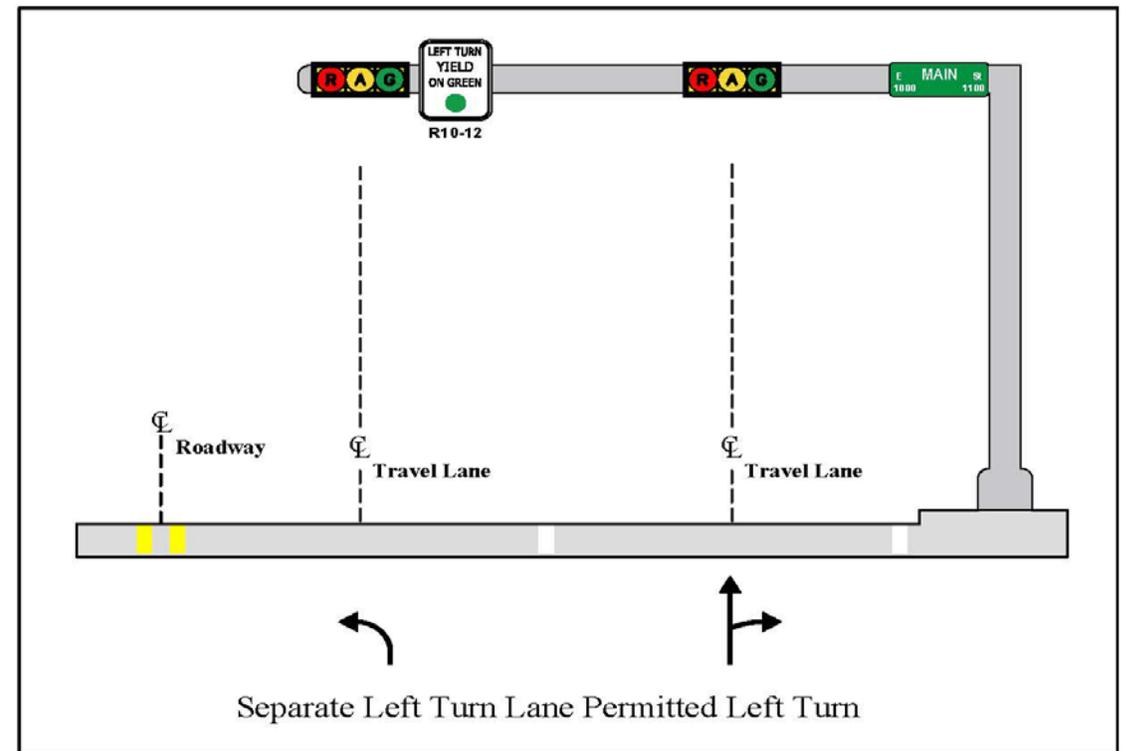


Figure 4

Highlights of Chapter 15 Revisions

Traffic Signal Hardware Design(Section E)



- ❖ **Mast Arm Pole Sizes**
 - Standard Mast Arm Pole Sizes (25ft - 55ft)
 - Mast arms longer than 55 feet in length may require an evaluation of the pole and foundation to be used as determined by the City
- ❖ **Luminaires**
 - Shall be included in ALL Designs
 - Luminaires positioned to illuminate crosswalks
 - Photocell shall be mounted in the Traffic Signal Service Panel
 - See Specifications for System Type

Highlights of Chapter 15 Revisions

Traffic Signal Hardware Design(Section E)

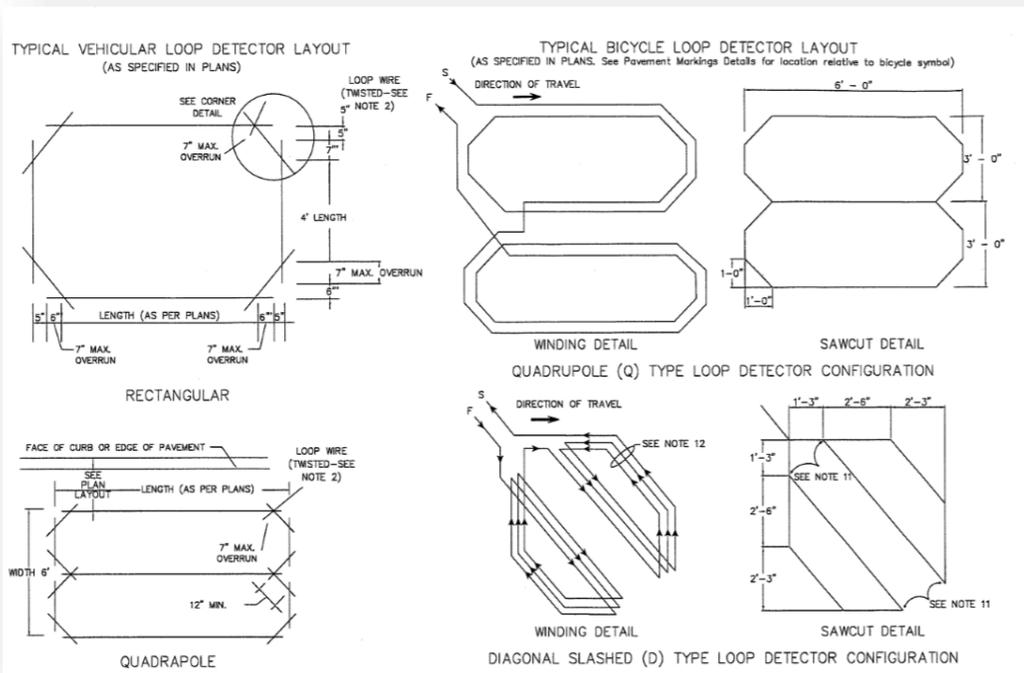
❖ Controller Type

- All new controllers shall be the Type 2070 Advanced Traffic Controllers (ATC) in compliance with the latest **Model 2070 Controller Unit Specification** unless otherwise directed by the City.

❖ Cabinet Type(s)

- ITS Serial Models (340, 342, 346)

Highlights of Chapter 15 Revisions

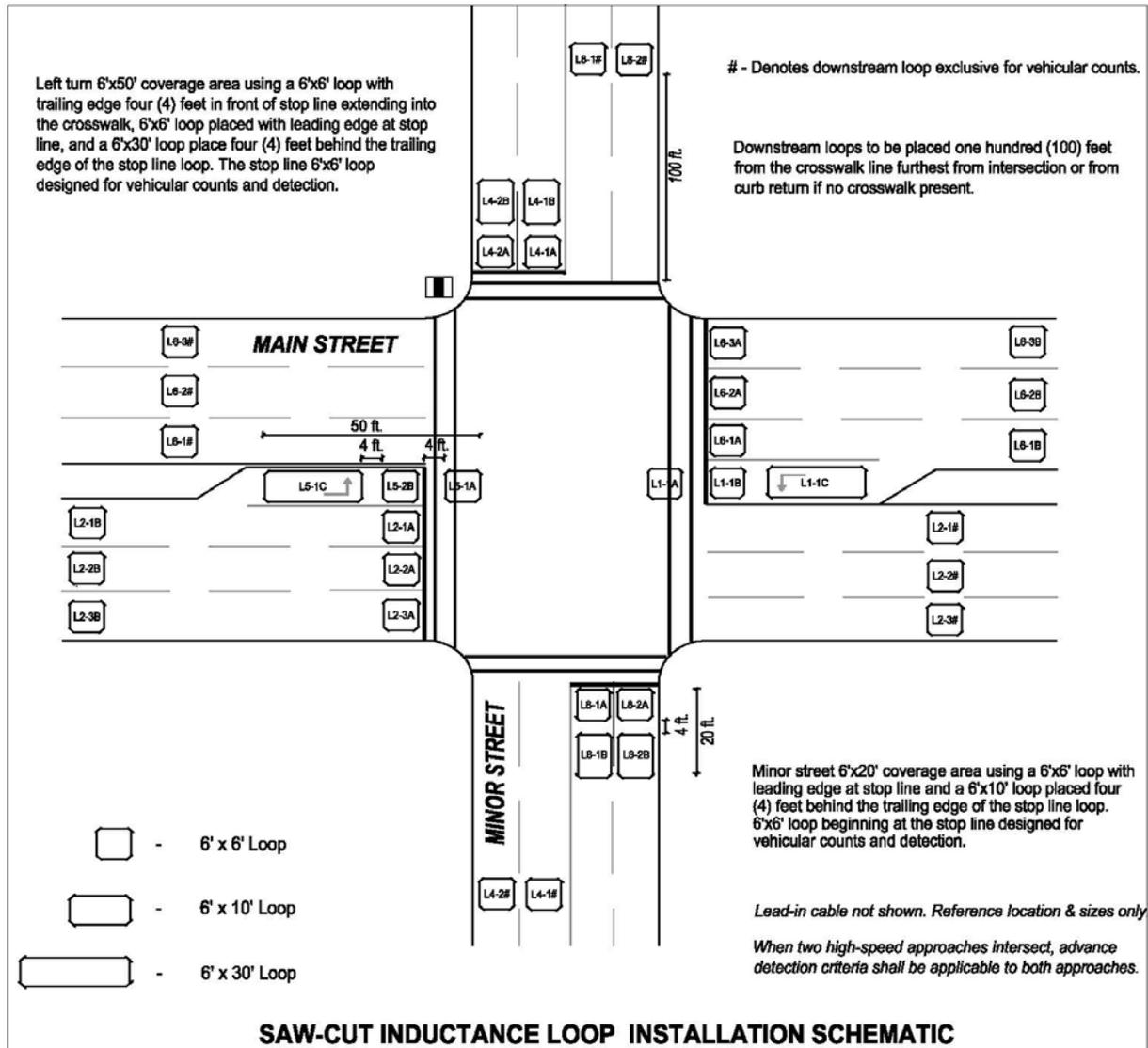


❖ Detector Design(Section G)

- Loop Detectors(Saw-cut & Preform)
 - Advance Loop Detection
 - Downstream Loop Detection which are Setup for Traffic Counts
- Wireless Magnetometers
- Video Detection(e.g. Construction)
- Bicycle Detection(See Section G.13 for Design Guidance)

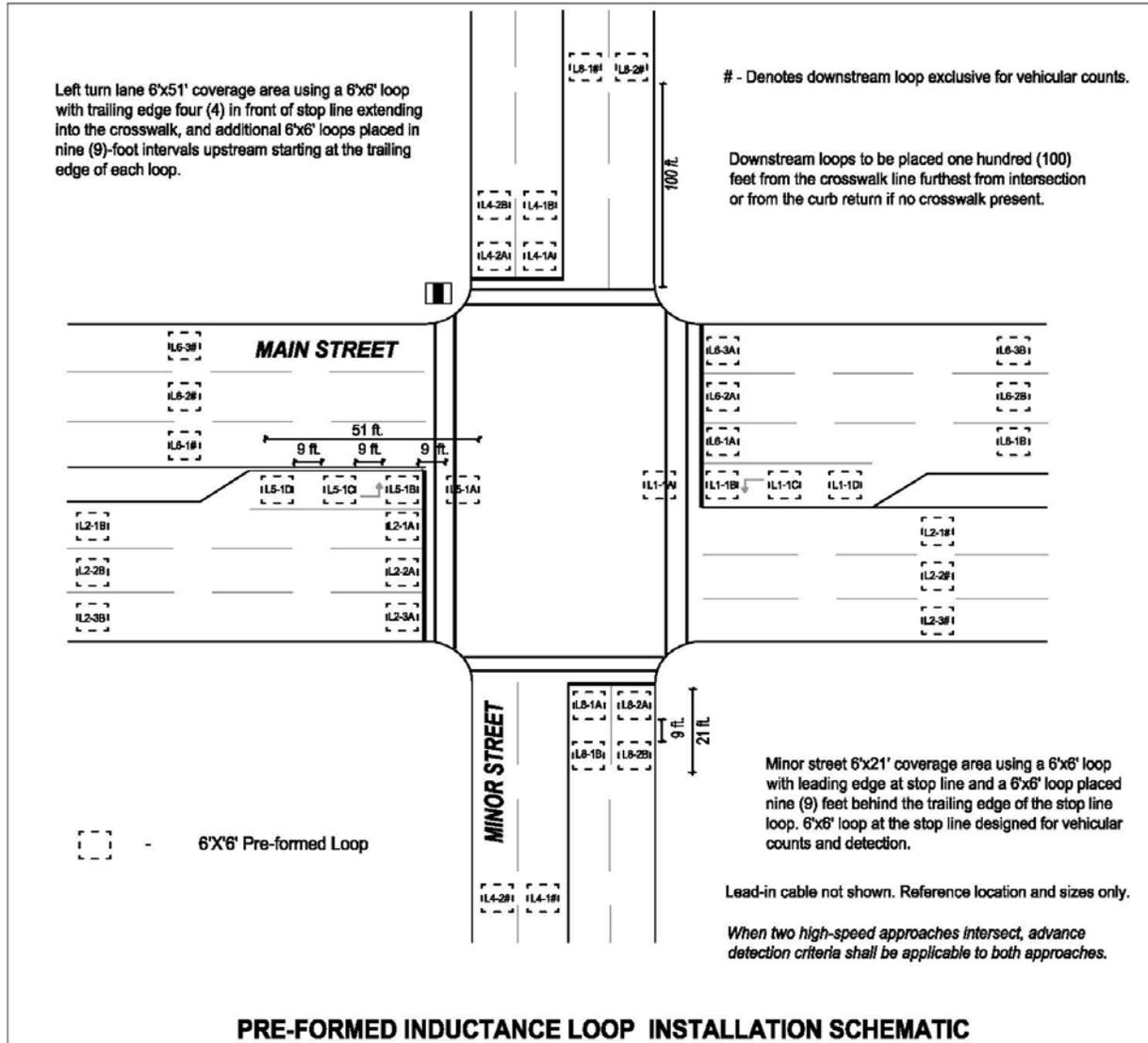
❖ Detector Design Schematics(See Below)

Highlights of Chapter 15 Revisions



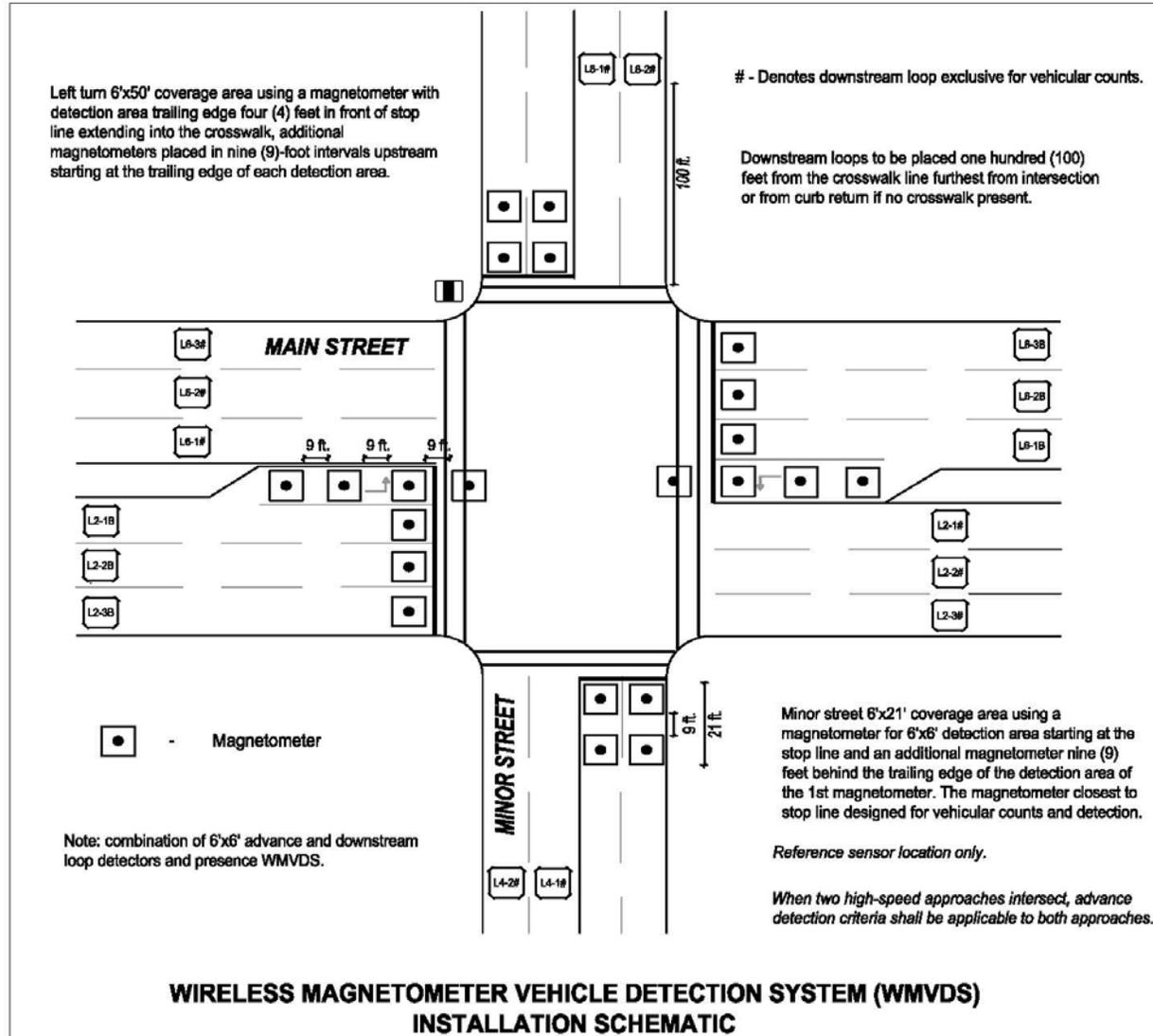
Sawcut Loop Detector Design

Highlights of Chapter 15 Revisions



Preformed Loop Detector Design

Highlights of Chapter 15 Revisions



Wireless Magnetometer Vehicle Detection System (WMVDS)

Highlights of Chapter 15 Revisions

- ❖ Signal Power & Cables (Section I)

- Must Specify Power Source on All Plans
- All Signal Cables Must be XHHW

- ❖ Signs

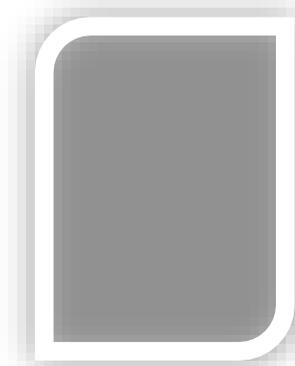
- Customized Street Name Signs Require Separate Approval from the City Traffic Engineer. Example “Management Districts”



Highlights of Chapter 15 Revisions

❖ Signalization of Bicycle Facilities(Chapter 15 & 17)

- Criteria for consideration of bicycle lane signalization
- Signal Mounting and Arrangement
- Detection
- Signs and Markings



Chapter 17 (New)



BICYCLE, TRANSIT AND PEDESTRIAN DESIGN REQUIREMENTS

❖ Available Resources for Design Guidance

- COH IDM Chapter 17
- Urban Bikeway Design Guide (NACTO)
- ASSHTO Guides: Designing for Bicyclist Safety, Guide for the Planning, Design and Operation of Pedestrian Facilities.
- Highway Capacity Manual 2010
- ITE Guide Designing Walkable Urban Thoroughfares: A Context Sensitive Approach



HPW - TXDOT Agreement: Operation & Maintenance of Traffic Signal Infrastructure

- ▶ City operates and maintains all signalized intersections within COH limits.
- ▶ COH Standards must be followed on all projects on all facilities to be operated and maintained by the City of Houston



Critical Components for Signal Operation & Maintenance :

- ✓ Vehicular & Pedestrian Signal Heads (type, color, arrangement, location)
- ✓ Accessible Pedestrian Signals (PB make, spacing)
- ✓ Wiring/conductors (number, type)
- ✓ Detection (Loops or wireless sensors only - No Video or Radar)
- ✓ Intersection Control Signs (lane assignment, signal related signs, SNS)
- ✓ Intersection Control Pavement Markings
- ✓ Other as determined by COH

Standard Drawing & Specifications

Standard Drawings and Specifications have been updated along with Chapter 15 & 17.

- ▶ **Standard Signal Design Drawings**
https://edocs.publicworks.houstontx.gov/documents/drawings/standard_details/traffic_details/traffic_details.pdf
- ▶ **Infrastructure Design Manual**
<https://edocs.publicworks.houstontx.gov/engineering-and-construction/design-manuals/city-of-houston-infrastructure-design-manual/3024-city-of-houston-infrastructure-design-manual.html>
- ▶ **List of Revised Chapters**
<https://edocs.publicworks.houstontx.gov/engineering-and-construction/design-manuals/city-of-houston-infrastructure-design-manual/2477-list-of-revised-chapters.html>
- ▶ **Traffic Signal General Notes**
https://edocs.publicworks.houstontx.gov/documents/drawings/standard_details/traffic_details/traffic_signal_general_notes.pdf



Questions and Answers



If should have any questions please feel free to contact me:

Paula Hunter

Graduate Engineer

Transportation & Drainage Operations

Houston Public Works

713-881-3275 Office

phunter@houstontranstar.org