



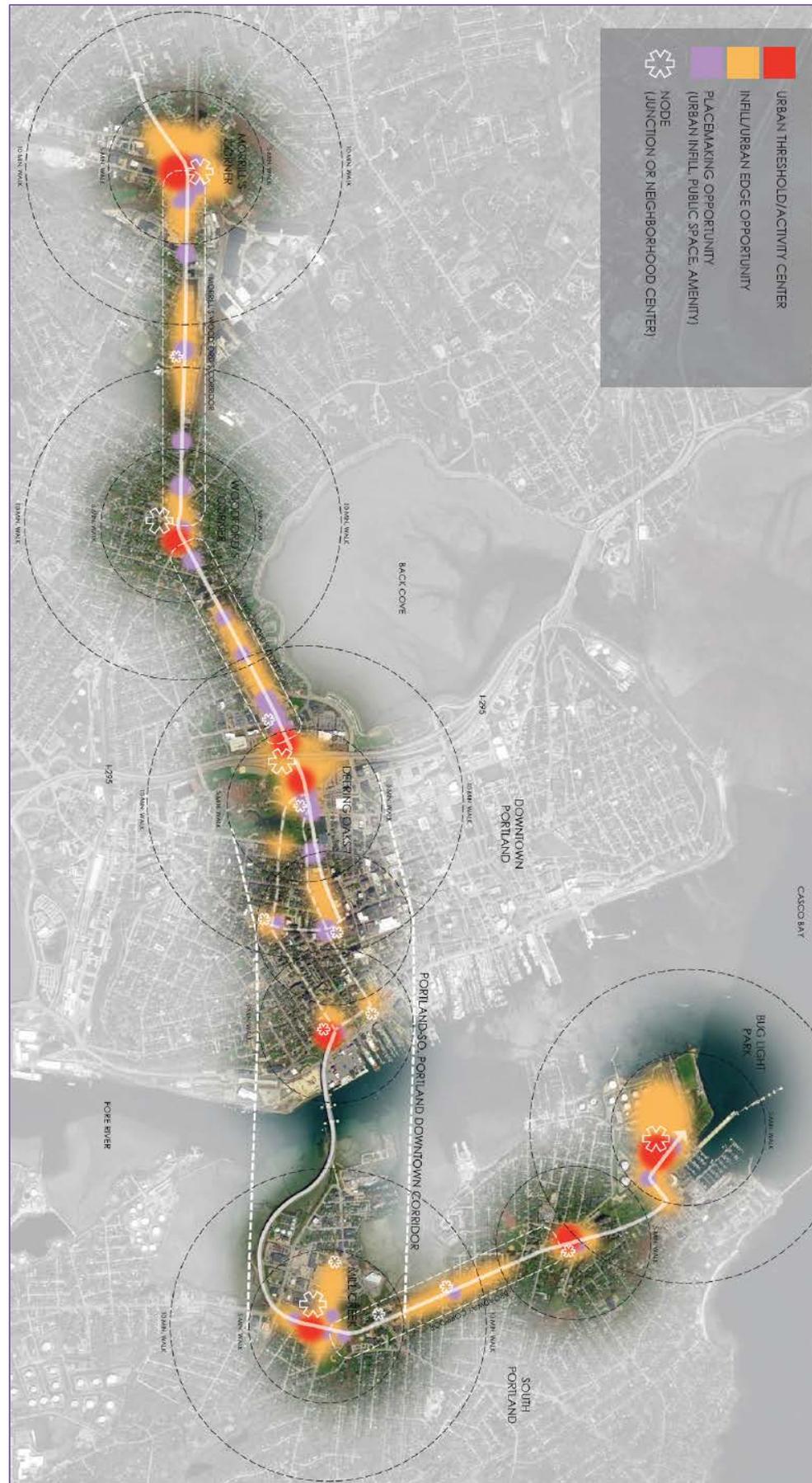
PORTLAND - SOUTH PORTLAND SMART CORRIDOR PLAN



Preliminary Preferred Alternatives and Analysis February 2019



Portland – South Portland Smart Corridor Plan



• Goals

- Encourage high-quality development
 - Multi-modal access to land use
 - Create opportunities for place-making and urban design/public realm
- Improve safety in all modes
 - Address high-crash locations
 - Recommend safety counter-measures
- Improve vehicle access and address traffic congestion
 - Reduce congestion and delay
 - Address bottlenecks, improve circulation
- Improve multi-modal access
 - Improve transit service, amenities
 - Promote pedestrian access & safety
 - Promote bicycle access & safety

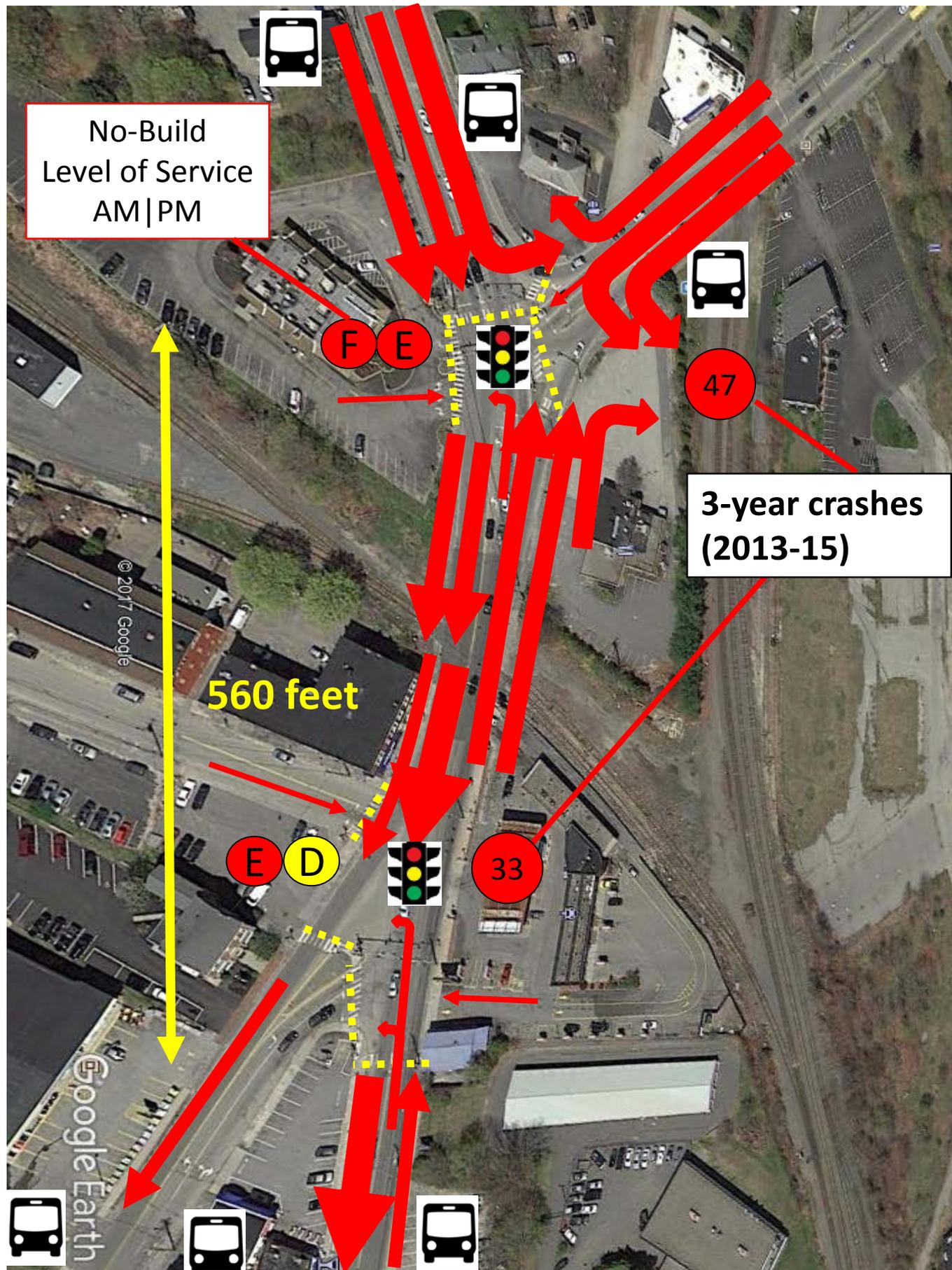
Corridor Improvement Objectives



- **Safety**
 - Address high crash locations
 - Increase multimodal use of the corridor
- **Traffic**
 - Address bottlenecks to reduce congestion
 - “Right-sizing” of roadway and intersections
- **Public transit**
 - Improved operations
 - Enhanced amenities: transfer hubs, shelters, benches, traveler info
- **Pedestrian**
 - Improve crossings – shorten long gaps, provide pedestrian access at all bus stops
 - Better access at intersections
- **Bicycle**
 - Extend city bicycle network
 - Fill system gaps and obstacles
- **Implementation**
 - Cost-effective
 - Enable phased implementation



Morrill's Corner – Issues & Opportunities



Traffic

- Heavy traffic flows and limited road connections
- Low-volume moves cause inefficient operations
- **Forest Ave SB @ Bishop/ Stevens: 2 lanes to 1**
- Queues spill back – AM SB queue to Warren Ave

Safety

- 3-year crashes (2013-2015)
 - Higher than state avg. rate
- Ped & Bike (2013 – 2015)
 - Ped = 5 crashes
 - Bike = 3 crashes

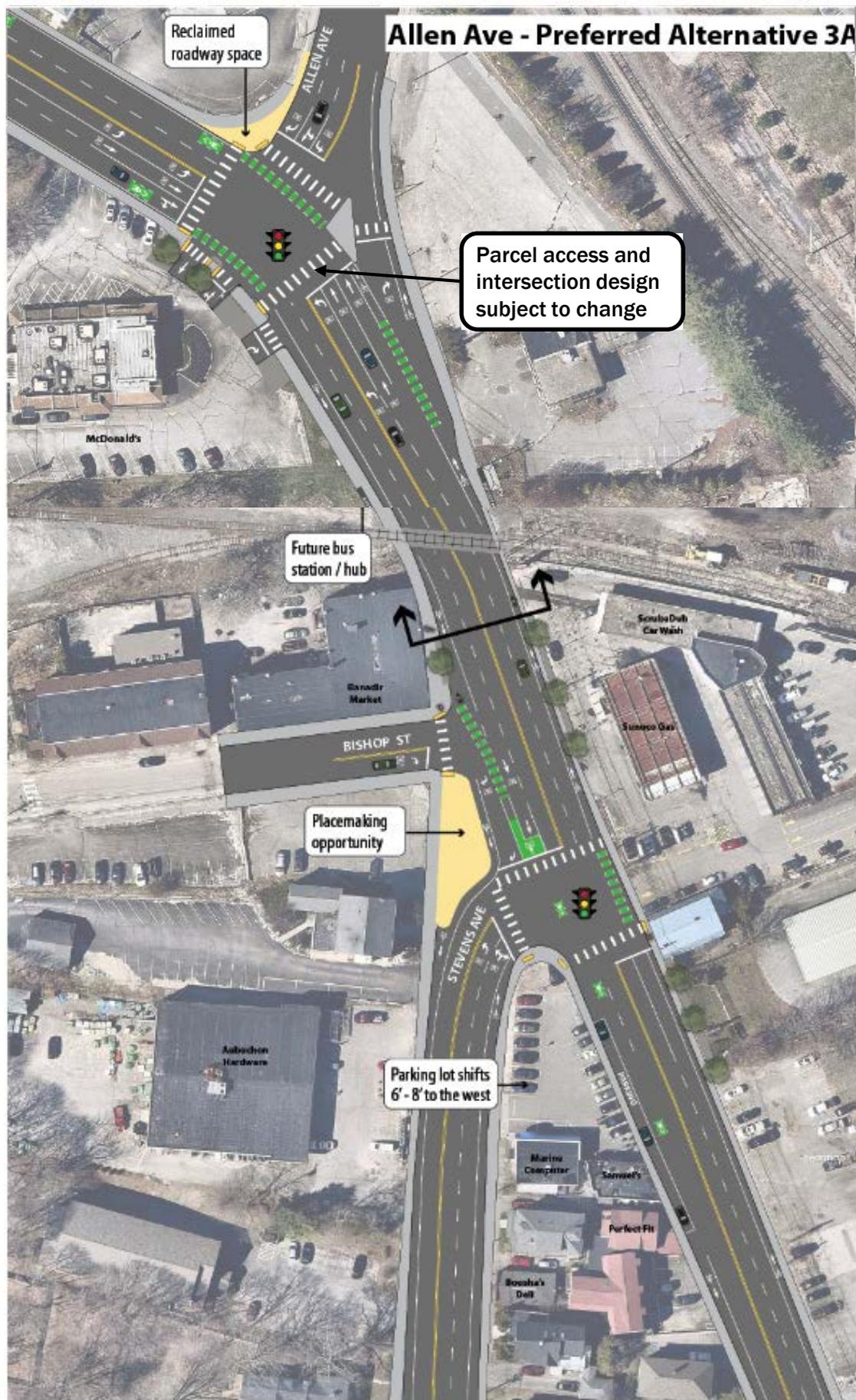
Transit

- Minimal transit infrastructure
- Served by 2 METRO routes
 - Route 2 – Forest Avenue
 - Route 9A/9B – loop route, Stevens Avenue to Allen Avenue
- No direct transfer opportunity
 - Routes cross on Forest Avenue between Allen Avenue and Stevens Avenue
 - No common stop

Pedestrian & Bicycle Access

- Circuitous crossings
- No crossing of Forest Ave from Stevens Ave to Allen Ave – 560 feet = 2 mins walk
- No bike lanes from Arbor St (NB) / Stevens Ave (SB) to Warren Ave

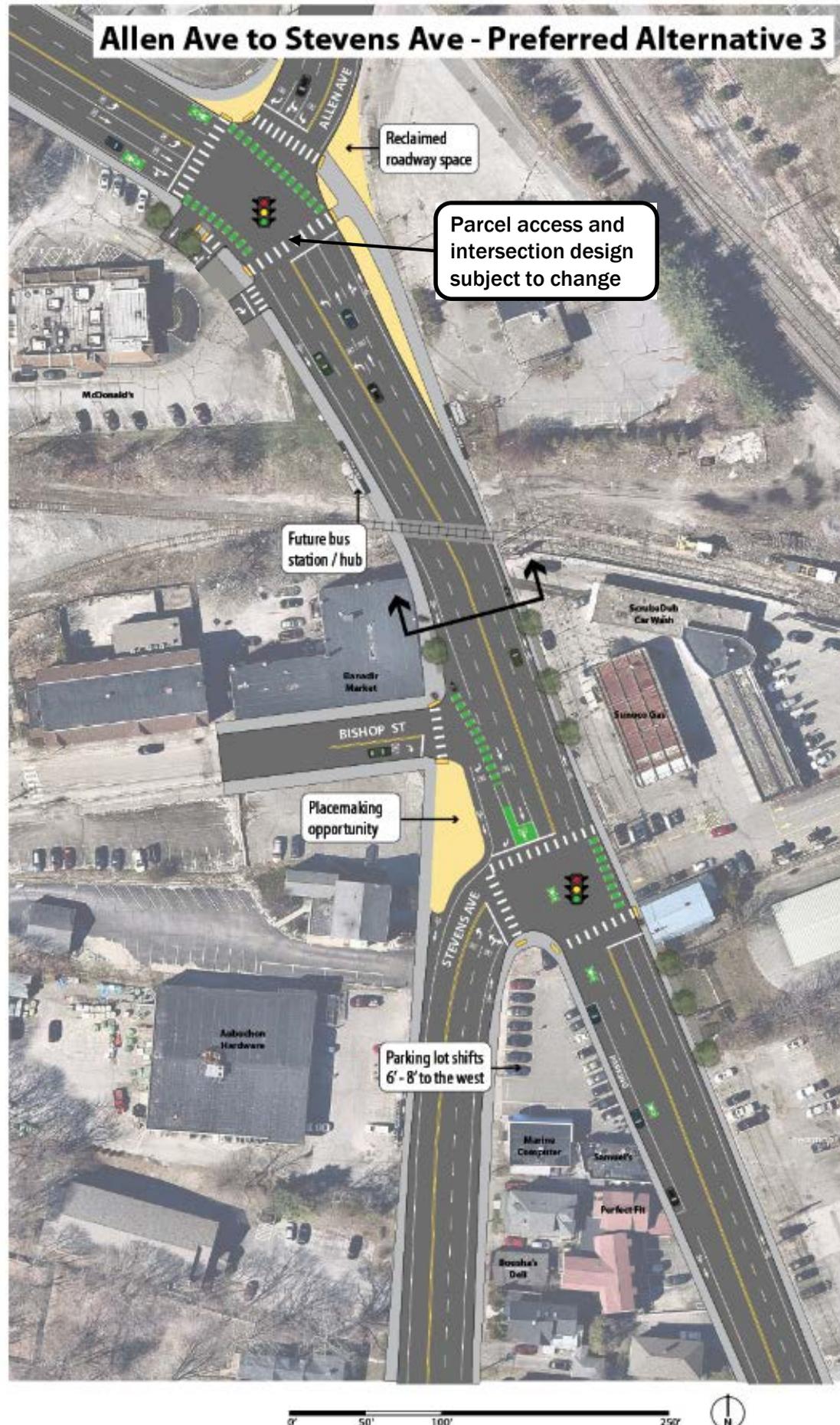
Morrill's Corner – Preferred Alternative (Alt. 3A)



| | Existing | No-Build | Preferred |
|--|----------|----------|---------------------|
| TRAFFIC | | | |
| AM LOS – Forest/Allen | F | F | D |
| AM LOS – Forest/Bishop/Stevens | E | E | C |
| PM LOS – Forest/Allen | E | E | C |
| PM LOS – Forest/Bishop/Stevens | D | D | C |
| AM SB Travel Time (Warren – Stevens), minutes | 3.0 | 3.5 | 2.1 |
| PM NB Travel Time (Stevens – Warren), minutes | 1.3 | 1.3 | 1.5 |
| AM SB Avg. Queue at Forest/Allen (Cap = 600') | 350' | 371' | 497' |
| AM SB Avg. Queue at Forest/Bishop/Stevens (300') | 1,079' | 1,176' | 323' |
| PM NB Avg. Queue at Forest/Bishop/Stevens (750') | 375' | 350' | 250' |
| PM NB Avg. Queue at Forest/Allen (300') | 313' | 333' | 463' |
| SAFETY | | | |
| Crashes/Yr (2013-15) | 27 | | |
| Ped-Bike Crashes/Yr (2010-15) | 2 | | |
| TRANSIT | | | |
| Amenities | -- | -- | Shelters, transfers |
| 2 AM SB Travel Time (Warren – Stevens), mins | 3.3 | 3.8 | 2.3 |
| 9 AM SB Travel Time (Forest – Stevens), mins | 3.6 | 4.1 | 2.6 |
| 2 PM NB Travel Time (Stevens – Warren), mins | 1.6 | 1.6 | 1.8 |
| 9 PM NB Travel Time (Stevens – Allen), mins | 1.6 | 1.6 | 1.8 |
| PEDESTRIAN | | | |
| Distance Btwn Xings | 560' | 560' | 425' |
| BICYCLE | | | |
| Facility | None | None | 5-6' lanes |
| Level of Traffic Stress | 4 | 4 | 3 |
| Parking | | | |
| On-street parking spaces | 8 | 8 | 8 |



Morrill's Corner – Sub-Alternative (Alt. 3)



| | Existing | No-Build | Preferred |
|--|----------|----------|---------------------|
| TRAFFIC | | | |
| AM LOS – Forest/Allen | F | F | D |
| AM LOS – Forest/Bishop/Stevens | E | E | B |
| PM LOS – Forest/Allen | E | E | E |
| PM LOS – Forest/Bishop/Stevens | D | D | C |
| AM SB Travel Time (Warren – Stevens), minutes | 3.0 | 3.5 | 2.0 |
| PM NB Travel Time (Stevens – Warren), minutes | 1.3 | 1.3 | 2.3 |
| AM SB Avg. Queue at Forest/Allen (Cap = 600') | 350' | 371' | 466' |
| AM SB Avg. Queue at Forest/Bishop/Stevens (300') | 1,079' | 1,176' | 277' |
| PM NB Avg. Queue at Forest/Bishop/Stevens (750') | 375' | 350' | 259' |
| PM NB Avg. Queue at Forest/Allen (300') | 313' | 333' | 854' |
| SAFETY | | | |
| Crashes/Yr (2013-15) | 27 | | |
| Ped-Bike Crashes/Yr (2010-15) | 3 | | |
| TRANSIT | | | |
| Amenities | -- | -- | Shelters, transfers |
| 2 AM SB Travel Time (Warren – Stevens), mins | 3.3 | 3.8 | 2.3 |
| 9 AM SB Travel Time (Forest – Stevens), mins | 3.6 | 4.1 | 2.6 |
| 2 PM NB Travel Time (Stevens – Warren), mins | 1.6 | 1.6 | 2.6 |
| 9 PM NB Travel Time (Stevens – Allen), mins | 1.6 | 1.6 | 2.6 |
| PEDESTRIAN | | | |
| Distance Btwn Xings | 560' | 560' | 425' |
| BICYCLE | | | |
| Facility | None | None | 5-6' lanes |
| Level of Traffic Stress | 4 | 4 | 3 |
| Parking | | | |
| On-street parking spaces | 8 | 8 | 8 |

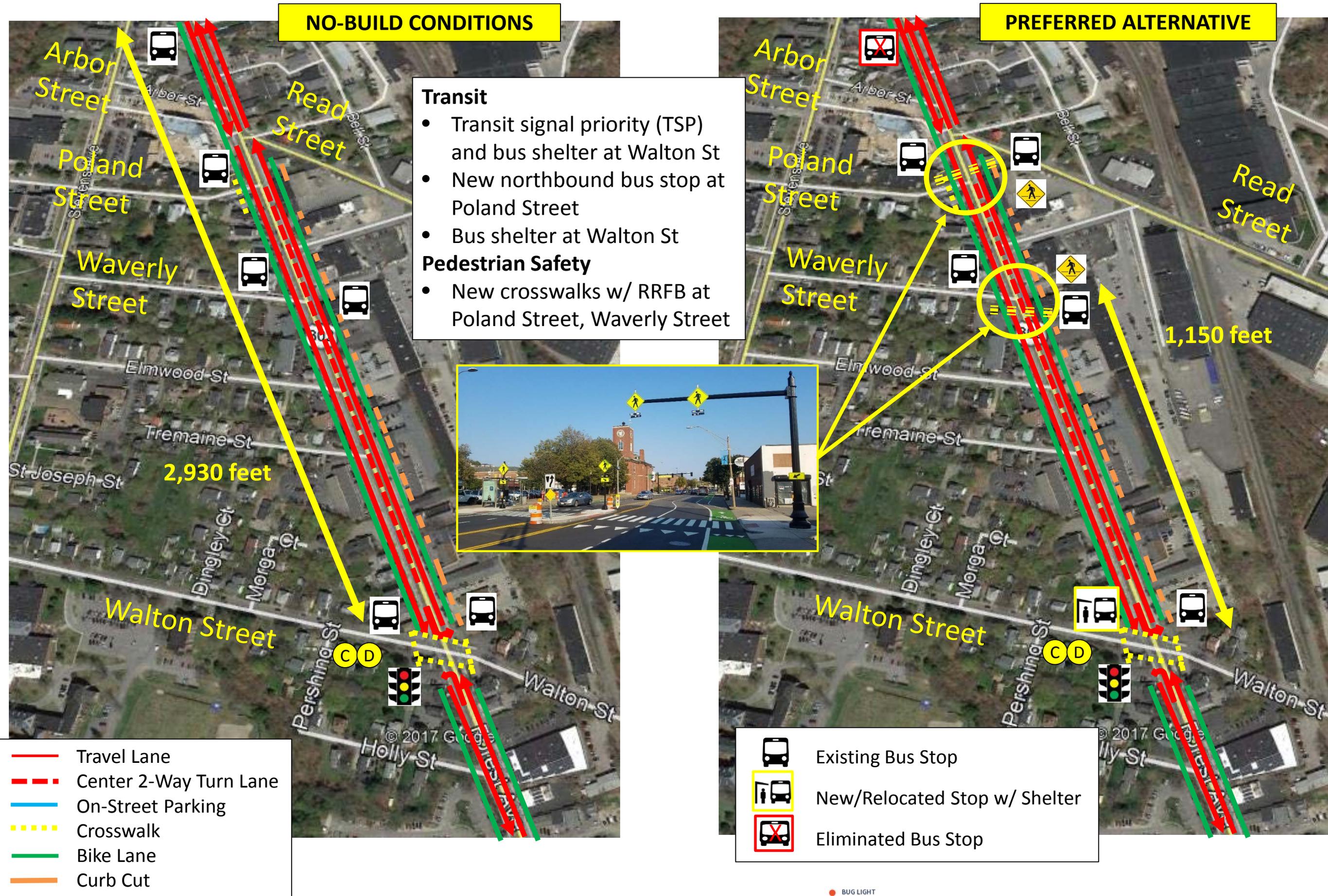
Morrill's Corner – Preferred Alternative (Alt. 3A)



Morrill's Corner – Preferred Alternative (Alt. 3)



Forest Ave – Morrill's Corner to Walton St – Preferred Alternative

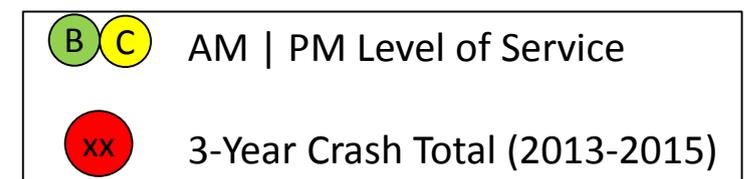


Forest Avenue Woodfords Corner to USM – No-Build Conditions

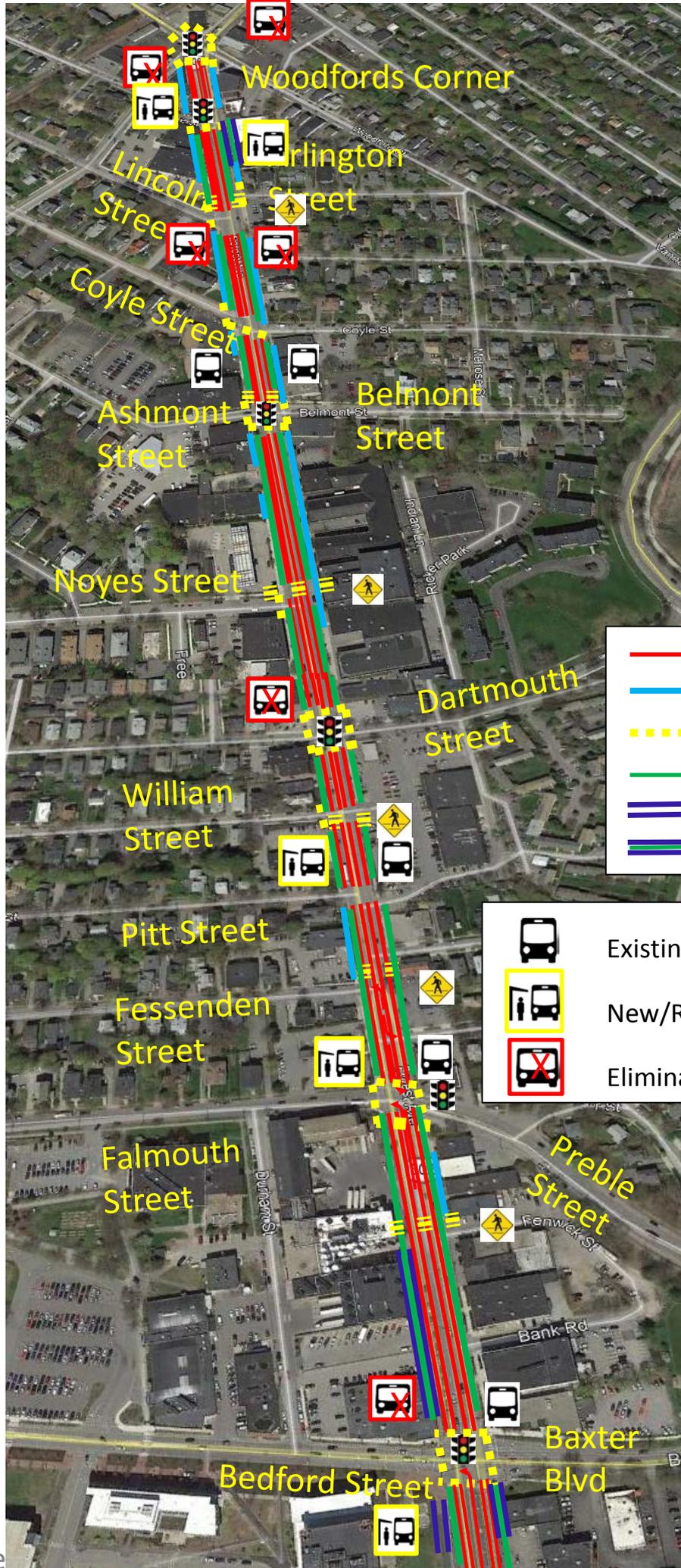


• Safety

- High levels of crashes
- 3-year crashes (2013-2015) higher than state avg. rate, several much higher
- Ped & Bike (2013 – 2015)
 - Ped = 11 crashes
 - Bike = 5 crashes



Forest Ave: Woodfords to USM – Alternative 2



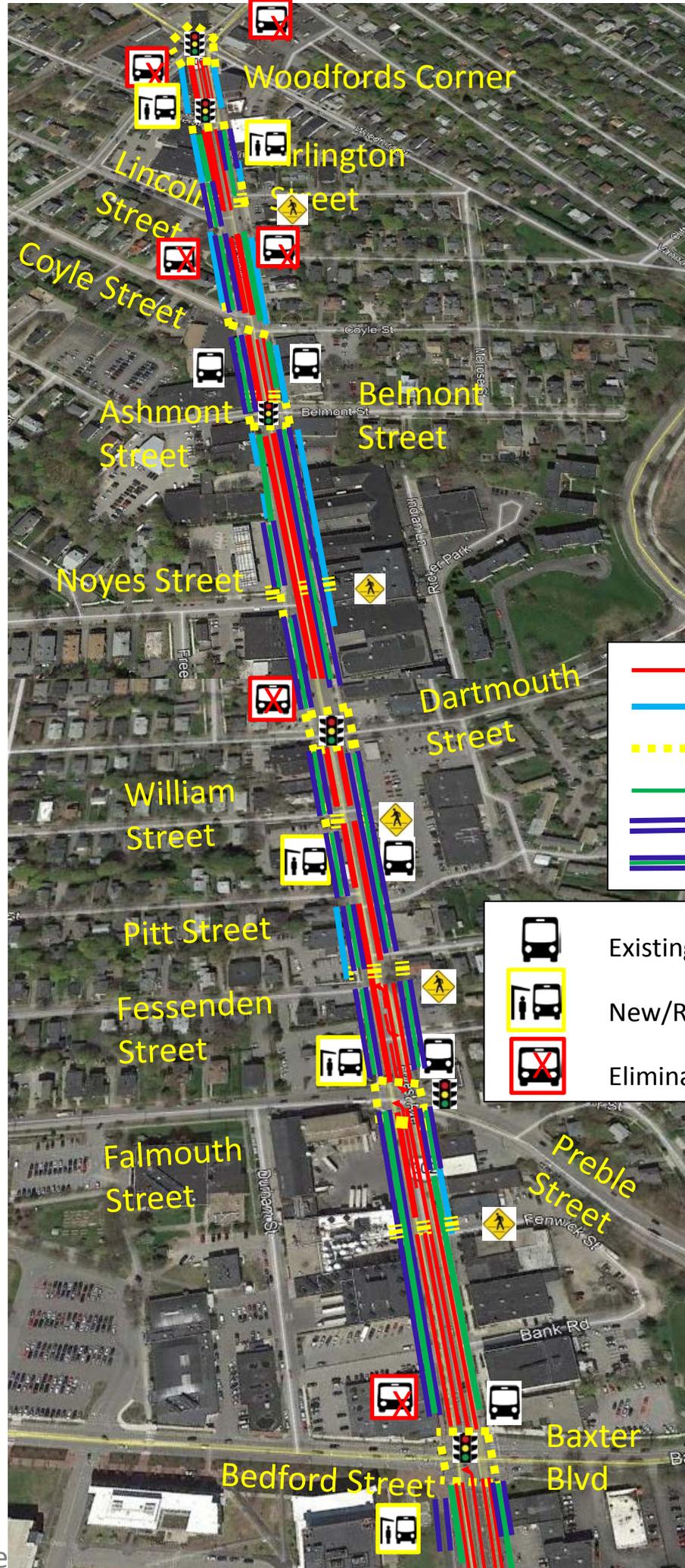
- Travel Lane
- On-Street Parking
- - - Crosswalk
- Bike Lane
- Bus Lane
- Bus-Bike Lane

- Existing Bus Stop
- New/Relocated Stop w/ Shelter
- Eliminated Bus Stop

| | Existing | No-Build | Alternative 2 |
|--|----------|----------|-------------------------------|
| TRAFFIC | | | |
| AM LOS – Forest/Revere | A | B | B |
| AM LOS – Forest/Ashmont/Belmont | A | A | A |
| AM LOS – Forest/Dartmouth | B | B | B |
| AM LOS – Forest/Falmouth/Preble | C | C | C |
| AM LOS – Forest/Bedford/Baxter | D | D | D |
| PM LOS – Forest/Revere | B | B | B |
| PM LOS – Forest/Ashmont/Belmont | A | A | B |
| PM LOS – Forest/Dartmouth | C | C | C |
| PM LOS – Forest/Falmouth/Preble | C | C | C |
| PM LOS – Forest/Bedford/Baxter | D | D | D |
| AM SB Travel Time (Woodfords – USM), minutes | 3.1 | 3.5 | 3.3 |
| AM NB Travel Time (USM - Woodfords), minutes | 2.4 | 2.4 | 2.4 |
| PM SB Travel Time (Woodfords – USM), minutes | 3.5 | 3.6 | 3.5 |
| PM NB Travel Time (USM - Woodfords), minutes | 2.8 | 2.8 | 2.8 |
| SAFETY | | | |
| Crashes/Year (2013-15) | 110 | | |
| Ped-Bike Crashes/Year (2010-15) | 9 | | Crossings – RRFBS, medians |
| TRANSIT | | | |
| Amenities | -- | -- | Shelters |
| Bus Lane | | | Bus-bike lanes Bedford/Baxter |
| 2 AM SB Travel Time (Woodfords – USM), mins | 4.6 | 5.0 | 4.2 |
| 2 PM NB Travel Time (USM – Woodfords), mins | 5.0 | 5.1 | 4.7 |
| BICYCLE | | | |
| Facility | None | None | 5-6' lanes |
| Level of Traffic Stress | 4 | 4 | 3 |
| Parking | | | |
| On-street parking spaces | 121 | 117 | 90 (-27) |



Forest Avenue: Woodfords to USM – Alternative 3



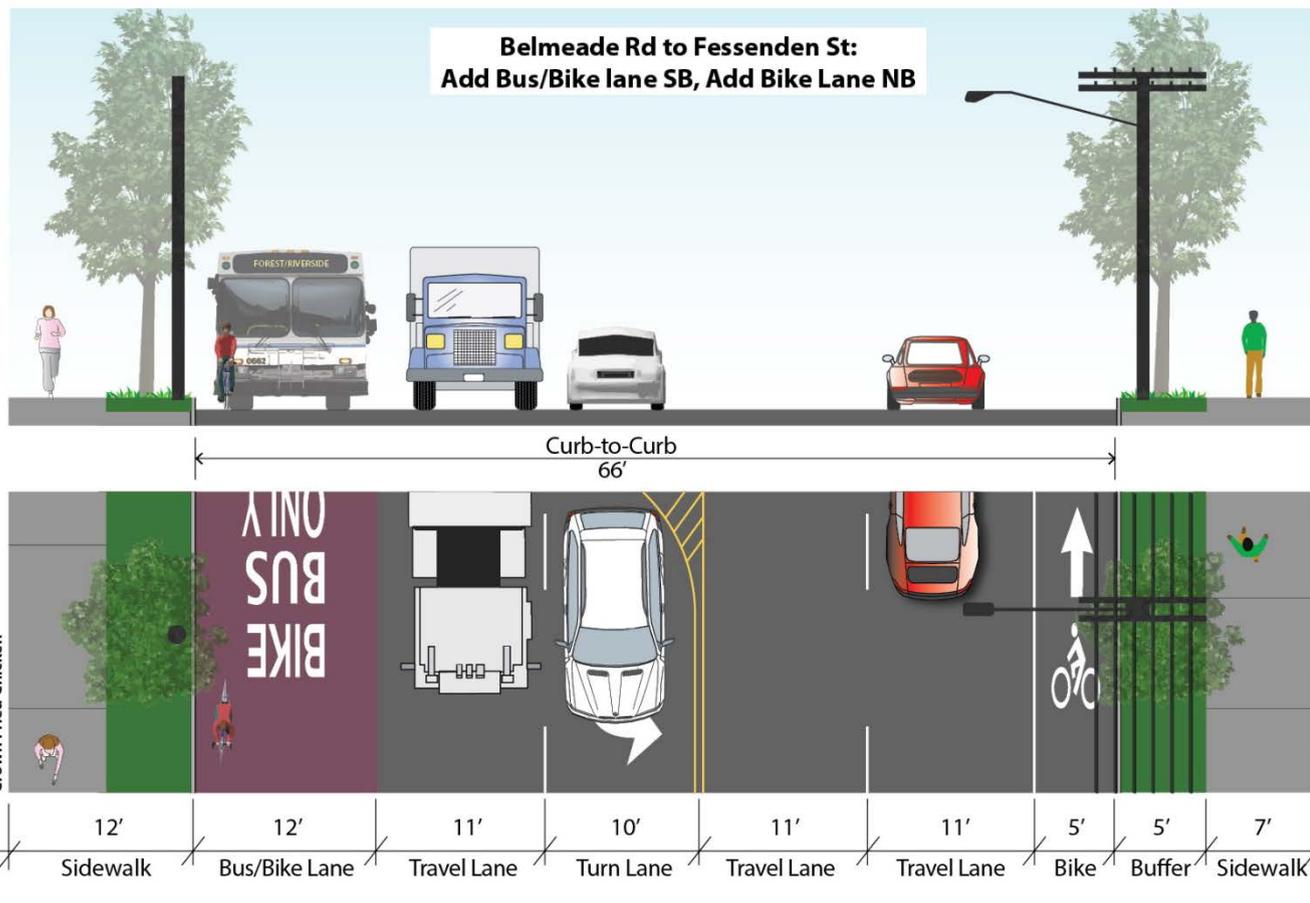
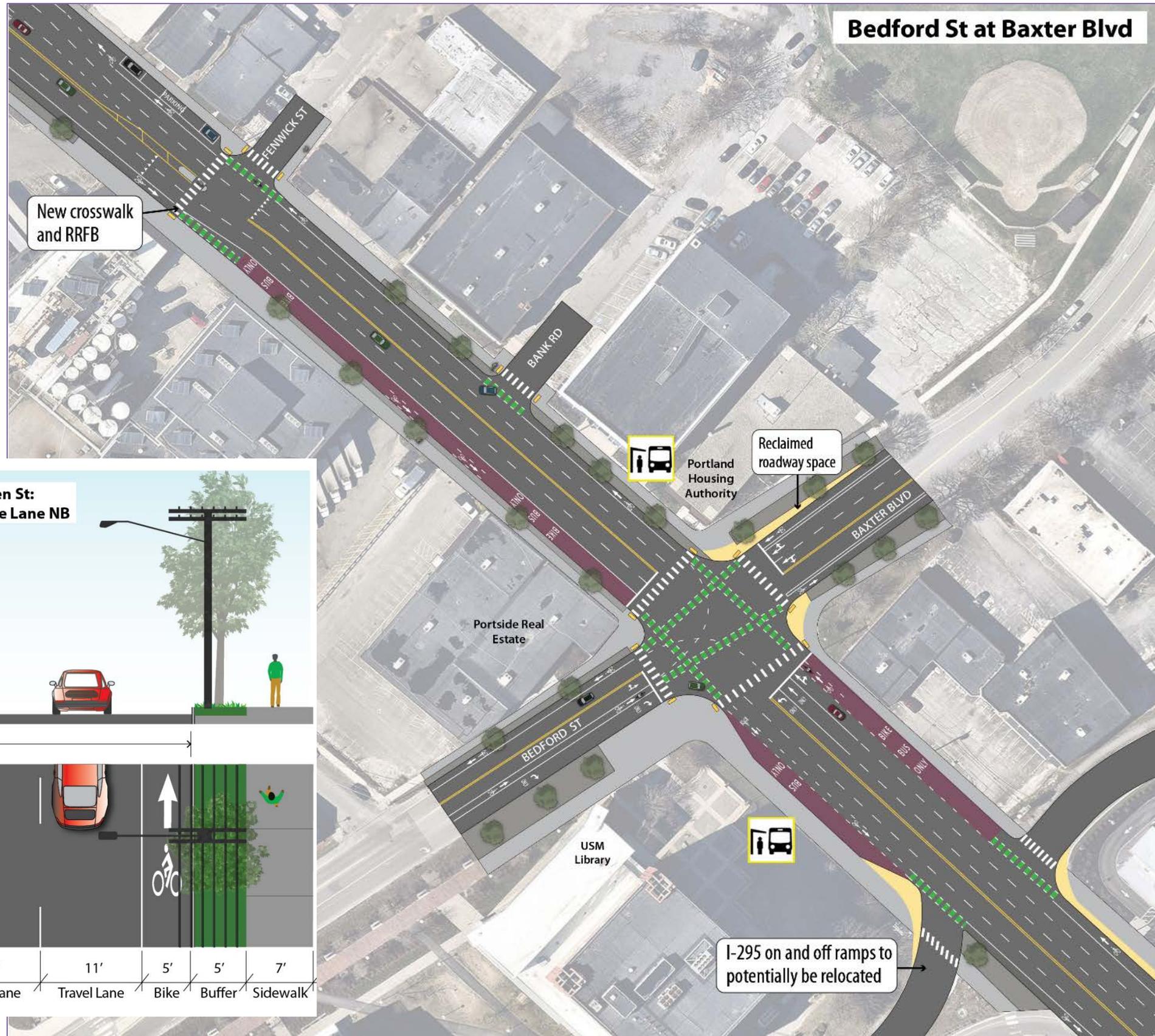
- Travel Lane
- On-Street Parking
- - - Crosswalk
- Bike Lane
- Bus Lane
- Bus-Bike Lane

- Existing Bus Stop
- New/Relocated Stop w/ Shelter
- Eliminated Bus Stop

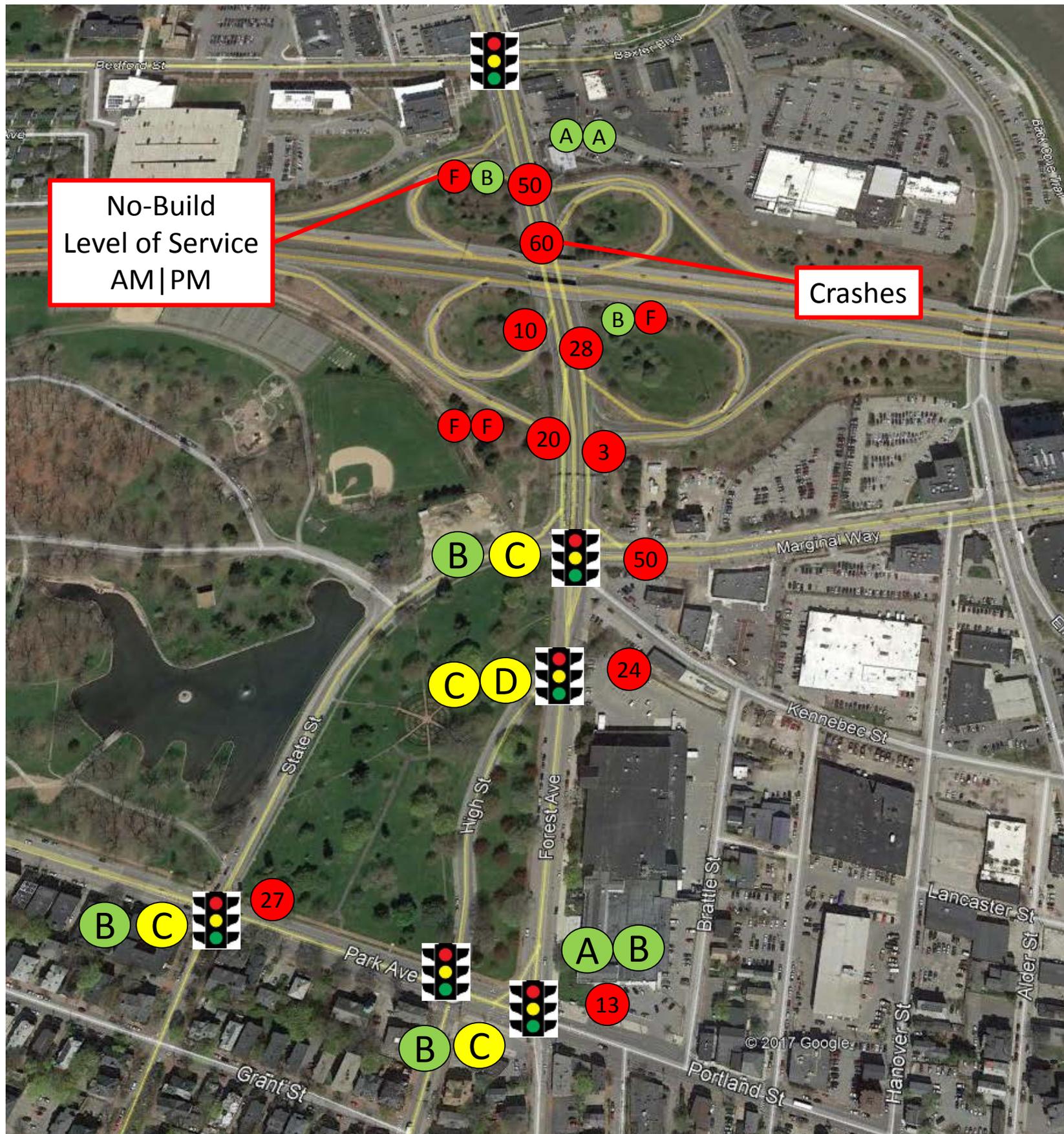
| | Existing | No-Build | Alternative 3 |
|--|----------|----------|------------------------------|
| TRAFFIC | | | |
| AM LOS – Forest/Revere | A | B | B |
| AM LOS – Forest/Ashmont/Belmont | A | A | A |
| AM LOS – Forest/Dartmouth | B | B | C |
| AM LOS – Forest/Falmouth/Preble | C | C | C |
| AM LOS – Forest/Bedford/Baxter | D | D | D |
| PM LOS – Forest/Revere | B | B | B |
| PM LOS – Forest/Ashmont/Belmont | A | A | B |
| PM LOS – Forest/Dartmouth | C | C | C |
| PM LOS – Forest/Falmouth/Preble | C | C | C |
| PM LOS – Forest/Bedford/Baxter | D | D | D |
| AM SB Travel Time (Woodfords – USM), minutes | 3.1 | 3.5 | 3.6 |
| AM NB Travel Time (USM - Woodfords), minutes | 2.4 | 2.4 | 2.5 |
| PM SB Travel Time (Woodfords – USM), minutes | 3.5 | 3.6 | 3.9 |
| PM NB Travel Time (USM - Woodfords), minutes | 2.8 | 2.8 | 3.1 |
| SAFETY | | | |
| Crashes/Year (2013-15) | 110 | | |
| Ped-Bike Crashes/Year (2010-15) | 9 | | RRFBs, medians |
| TRANSIT | | | |
| Amenities | -- | -- | Shelters |
| Bus Lane | | | Bus-bike lanes |
| 2 AM SB Travel Time (Woodfords – USM), mins | 4.6 | 5.0 | 3.5 |
| 2 PM NB Travel Time (USM – Woodfords), mins | 4.3 | 4.3 | 3.7 |
| BICYCLE | | | |
| Facility | None | None | 5-6' lanes Bus-bike lanes |
| Level of Traffic Stress | 4 | 4 | 3 |
| Parking | | | |
| On-street parking spaces | 121 | 117 | 90 (-27) |



Forest Avenue at Bedford St/Baxter Blvd – Alternative 2



I-295, Deering Oaks – Issues



Traffic

- Weaving conflicts at I-295 cloverleaf ramps
- Conflicts at Forest Ave SB median-divided section
- Wide crossings, confusing movements at Forest/State/Marginal
- Inefficient operations with High Street approach

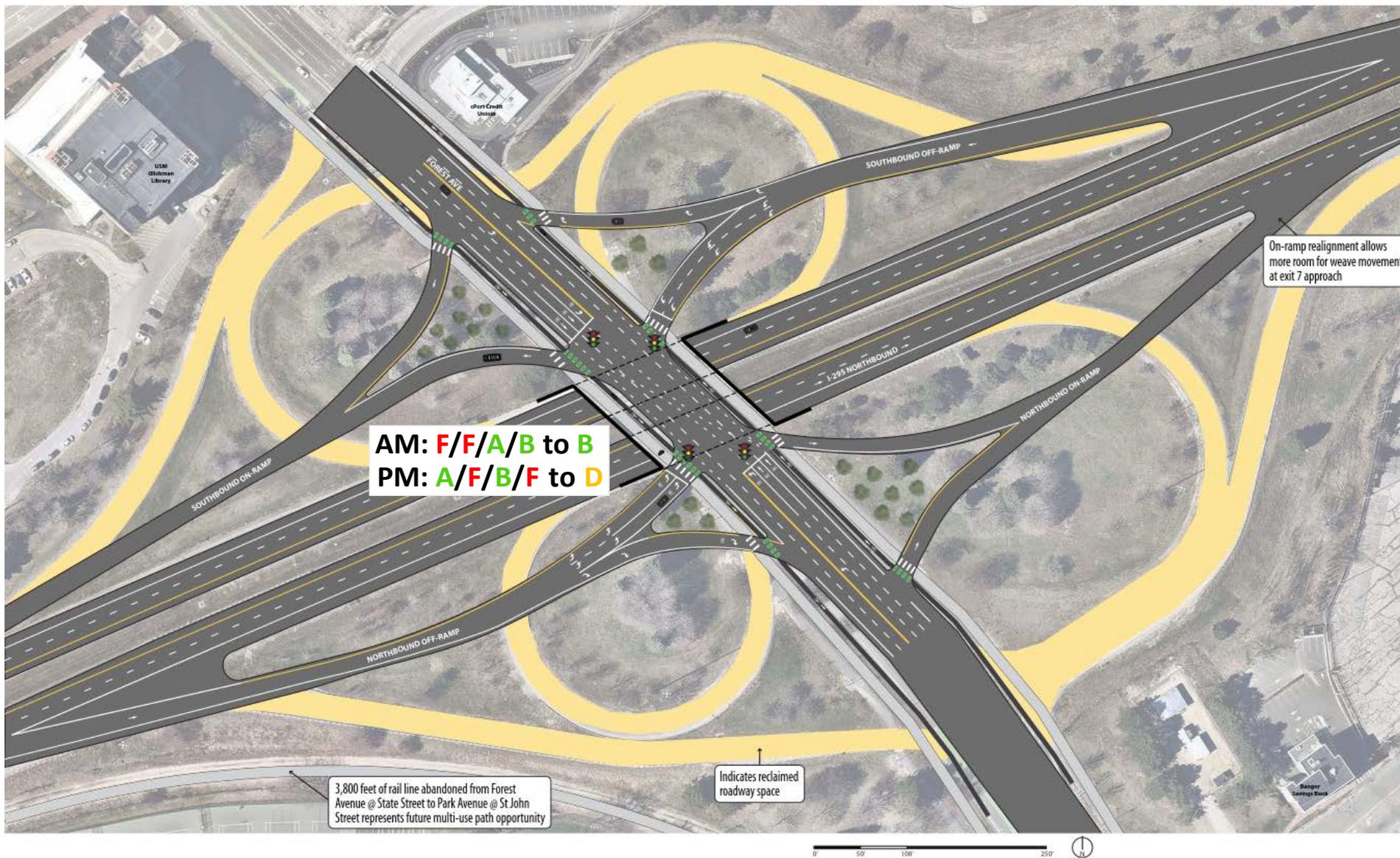
Safety

- 3-year crashes (2013-2015)
 - Higher than state avg. rate
- Ped & Bike (2013 – 2015)
 - Ped = 1 crash
 - Bike = 3 crashes

Pedestrian & Bicycle Access

- Wide crossings of Forest
- Ped and bike access much improved at interchange, but still an obstacle

Forest Avenue at I-295, Exit 6 – Interchange Reconstruction Alternative



AM: F/F/A/B to B
PM: A/F/B/F to D

Single Point Urban Interchange

- Undersized cloverleaf interchange redesigned as SPUI (similar to diamond interchange, but with opposing left turns operating concurrently)

Advantages

- Eliminates conflict-prone, congestion-prone cloverleaves
- More efficient traffic operations
- Creates new development opportunities
 - NW = 1.5 acres, NE = 2.2 acres
 - SW = 1.8 acres, SE = 1.5 acres

Disadvantages

- Unfamiliar interchange design
- Introduces signal delay for ramps

| | |
|----------------|--|
| Transit Access | <ul style="list-style-type: none"> • Signalization may increase run times |
| Ped Access | <ul style="list-style-type: none"> • Signal meters high-speed vehicles • Additional delays under highway viaduct |
| Bike Access | <ul style="list-style-type: none"> • Signal control of ramp traffic |

Forest Avenue at Deering Oaks – State Street – High Street – Alternative 2A

| | Existing | No-Build | Alternative 2A |
|---|----------|----------|------------------------------|
| TRAFFIC | | | |
| AM LOS – Forest/State/Marginal | B | B | A |
| AM LOS – Forest/High – Forest/Kennebec | C | C | A |
| AM LOS – Forest/High | -- | -- | B |
| PM LOS – Forest/State/Marginal | C | C | B |
| PM LOS – Forest/High – Forest/Kennebec | D | D | D |
| PM LOS – Forest/High | -- | -- | C |
| AM SB Travel Time (I-295 – Park Ave), minutes | 1.6 | 1.6 | 1.1 |
| AM NB Travel Time (Park Ave – I-295), minutes | 1.1 | 1.1 | 1.0 |
| PM SB Travel Time (I-295 – Park Ave), minutes | 2.7 | 2.7 | 1.1 |
| PM NB Travel Time (Park Ave – I-295), minutes | 1.6 | 1.6 | 1.6 |
| SAFETY | | | |
| Crashes/Year (2013-15) | 29 | | |
| Ped-Bike Crashes/Year (2010-15) | 1 | | Signalize "Yield" control |
| BICYCLE | | | |
| Facility | None | None | 5-6' lanes |
| Level of Traffic Stress | 4 | 4 | 3 |



Forest Avenue at Marginal Way/State Street– Alternative 2A



Corridor-wide Transit Recommendations

- Bus stop consolidation
- Addition of bus shelters
- Transit signal priority
- Queue jump lanes, phasing



Corridor-wide Bicycle Recommendations

- **Bike lanes**
 - Poland Street – Morrill’s Corner
 - Revere Street – Park Avenue
- **Buffered bike lanes**
 - Deering Oaks Park
 - Casco Bay Bridge



Questions and Answers

www.mainesmartcorridor.com

