



"A City for All Ages"

# CITY OF PORT ST. LUCIE

Engineering Department

Accredited Agency – American Public Works Association

## MEMORANDUM

To: Gregory J. Oravec – City Manager

Thru: Patricia Roebing, P.E. – City Engineer

From: Kimberly Graham, P.E. – Assistant City Engineer

Date: May 8, 2012

Re: Intersection of Port St. Lucie and U.S. 1 – Update on Modifications

The Florida Department of Transportation (FDOT) recently completed modifications to the intersection of Port St. Lucie Boulevard and U.S. 1. The modifications include the following:

- Addition of a third left turn lane from northbound U.S. 1 to westbound Port St. Lucie Boulevard
- Convert the dedicated right turn lane on northbound U.S. 1 to eastbound Cane Slough Road to a shared thru/right turn lane
- Convert the outside eastbound left turn lane on Port St. Lucie Boulevard to northbound U.S. 1 to a thru lane
- Convert the shared thru and right turn lane on eastbound Port St. Lucie Boulevard to a second right turn lane onto southbound U.S. 1
- Addition of overhead signage on both U.S. 1 and Port St. Lucie Boulevard delineating the lane assignments
- Associated roadway improvements

Following the implementation of the improvements referenced above, representatives of the City and FDOT worked together to address motorist concerns, questions and congestion associated with the various modifications at the intersection. Based upon our review the following plan of action was developed and is being implemented:

- Create an 'overlap' for the eastbound Port St. Lucie to southbound U.S. 1 dual rights with the northbound U.S. 1 to westbound Port St. Lucie triple lefts, this included prohibiting right turns on red to accommodate pedestrians as needed
- Modifying the timing of the eastbound Port St. Lucie Boulevard left turn onto northbound U.S. 1 to allow additional vehicles to clear the intersection
- Addition of thru arrow pavement markings on eastbound Port St. Lucie Boulevard

Per your direction, the Engineering Department has developed a brief power point presentation summarizing the various FDOT and City modifications to the Port St. Lucie Boulevard and U.S. 1 intersection. If you have any questions or require further information, please do not hesitate to contact me.

KAG/kag  
Attachment

cc: Jesus Merejo – Utility Systems Director  
Denise Burton, P.E. – Transportation En  
Paul Johnson – Manager, Traffic Operat

S:\12-05-08 MEM to CM PSL and US1 Intersection Modifications.doc

*New Business*

*Approved JGO*

*There will be a PPT presentation*

**RECEIVED**

MAY 08 2012

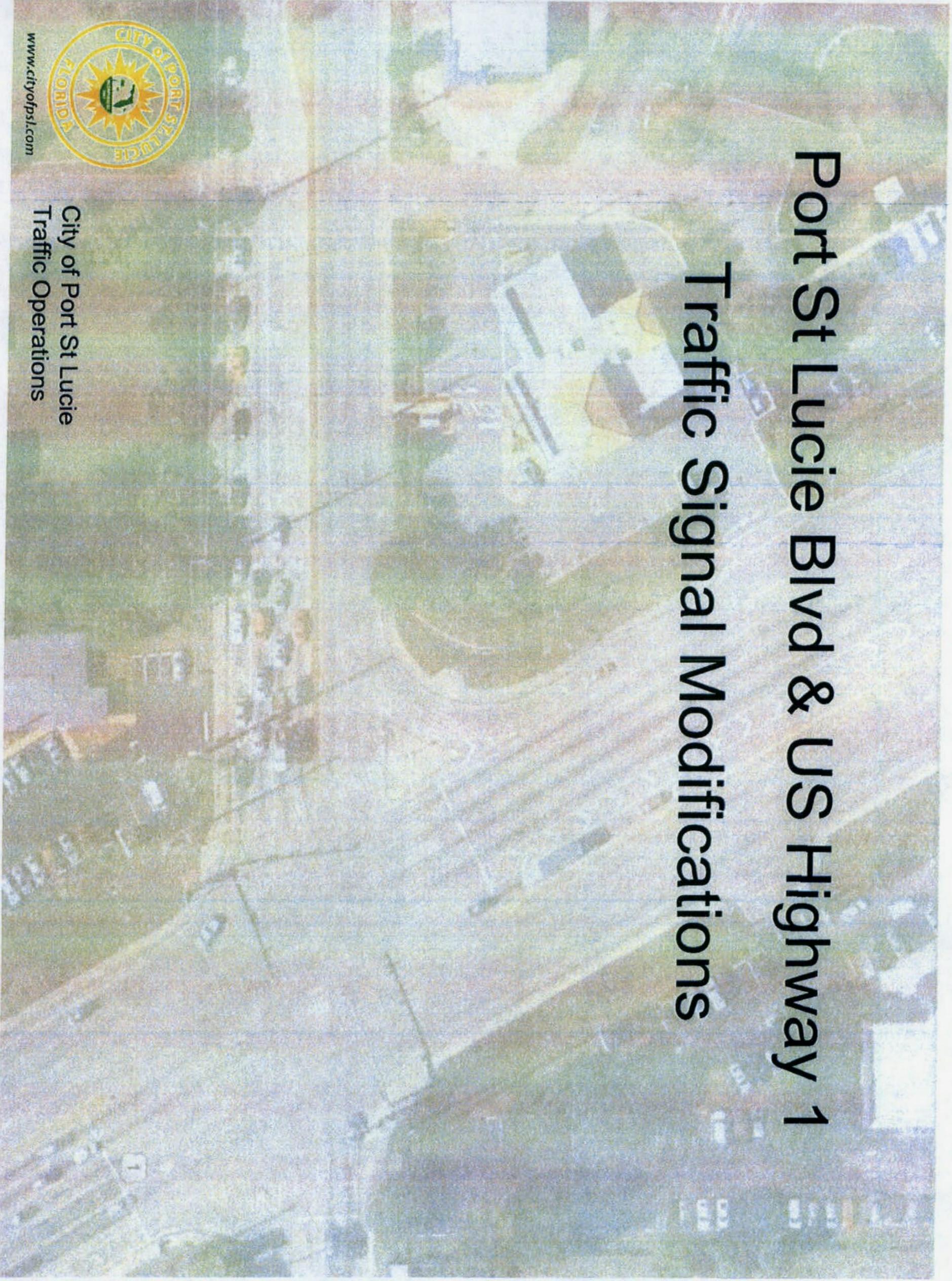
City Manager's Office

# Port St Lucie Blvd & US Highway 1 Traffic Signal Modifications

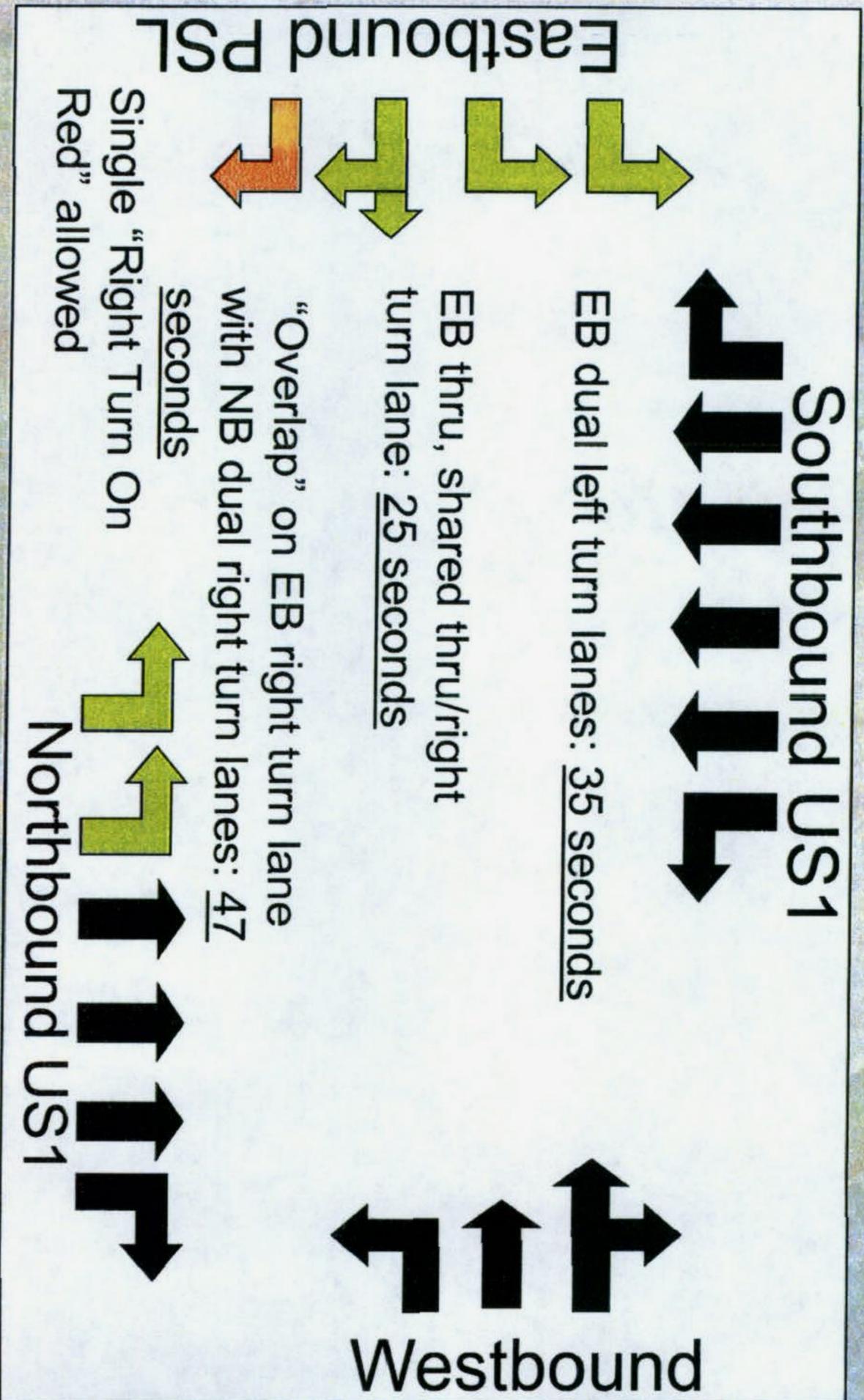


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# Conditions Prior to Recent FDOT Roadway Improvements



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# “Syncro” Simulation #1

## Before 2011 FDOT Improvements

### US-1

- NB dual left turn lanes on US-1 exceeded capacity causing delays on US-1.
- NB right turn lane on US-1 was under utilized.

### Port St Lucie Blvd

- EB dual left turn lanes on Port St Lucie Blvd under utilized.
- Due to the EB shared thru/right turn lane on Port St Lucie Blvd, lane drifting conditions were created crossing US-1.



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An aerial photograph of a city street intersection. A semi-transparent traffic simulation is overlaid on the image, showing vehicle paths and traffic flow. The simulation includes a central intersection with a roundabout-like structure and several lanes of traffic. The text "Syncro" is underlined in blue, and "Simulation #1" is in black. The City of Port St Lucie logo and website are in the top left corner. A disclaimer is at the bottom.

# “Syncro” Simulation #1

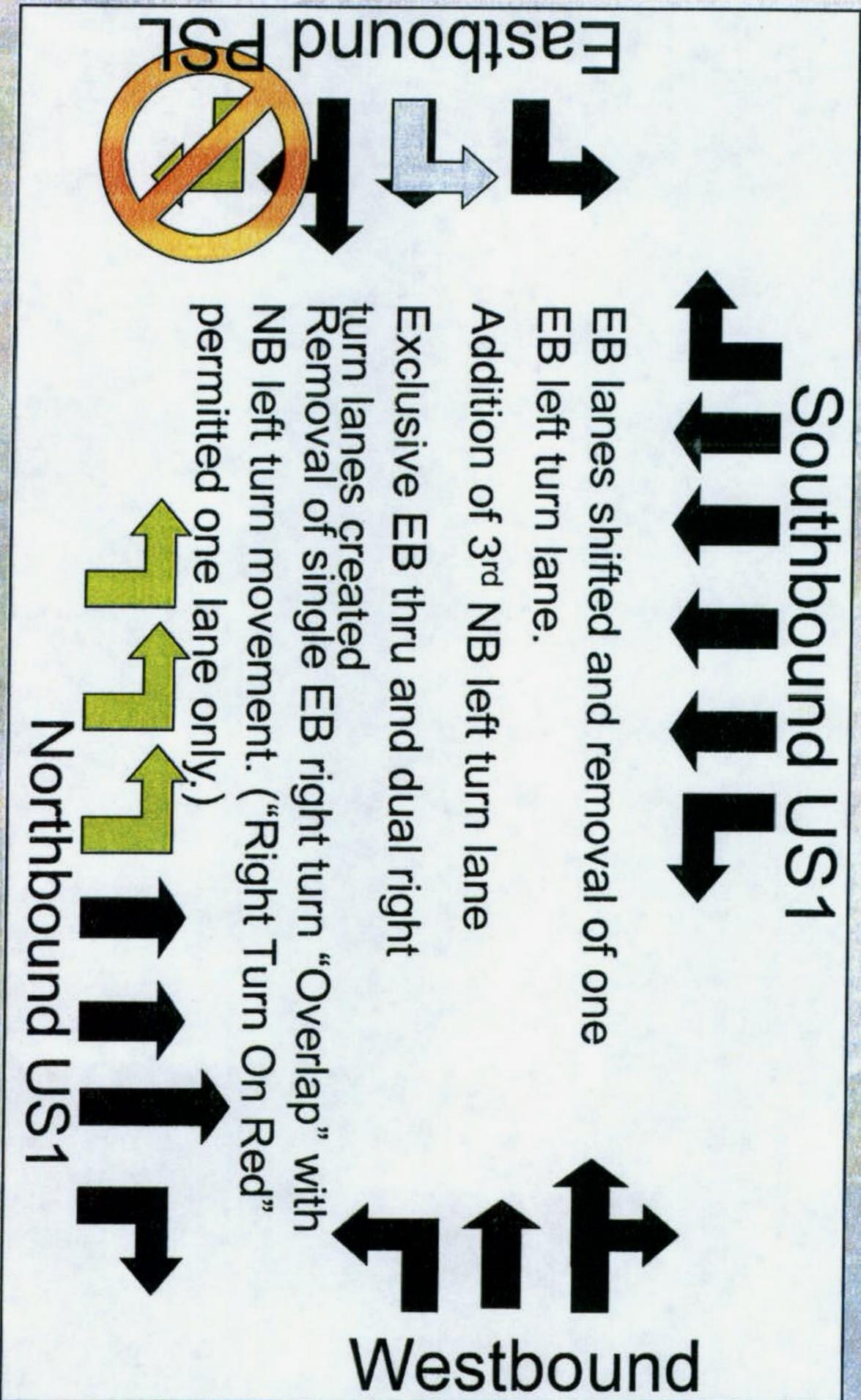


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*Simulation is for illustrative purposes only.*

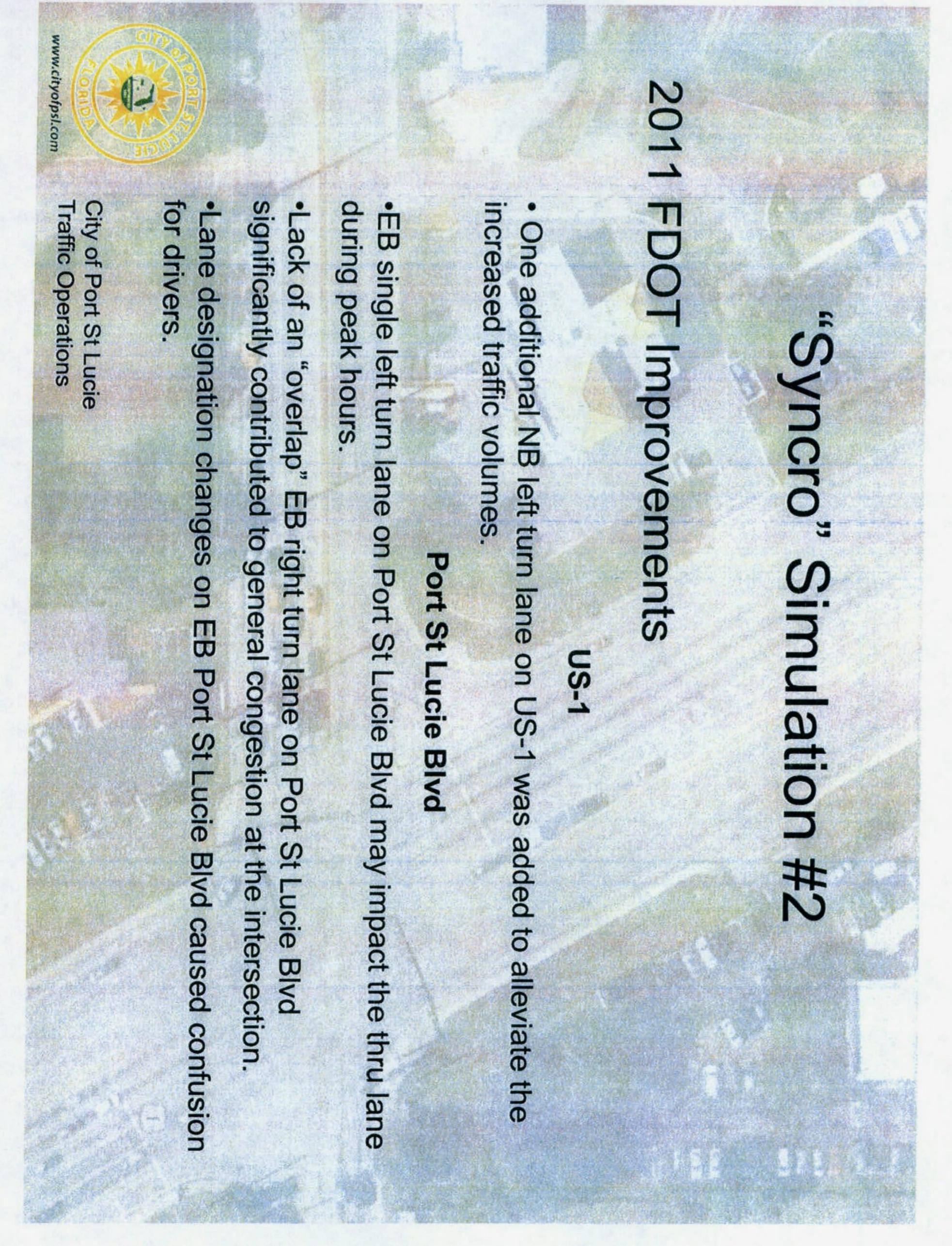
# FDOT Roadway Improvements



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NB lanes shifted, exclusive NB right turn lane becomes shared thru/right turn lane



# “Syncro” Simulation #2

## 2011 FDOT Improvements

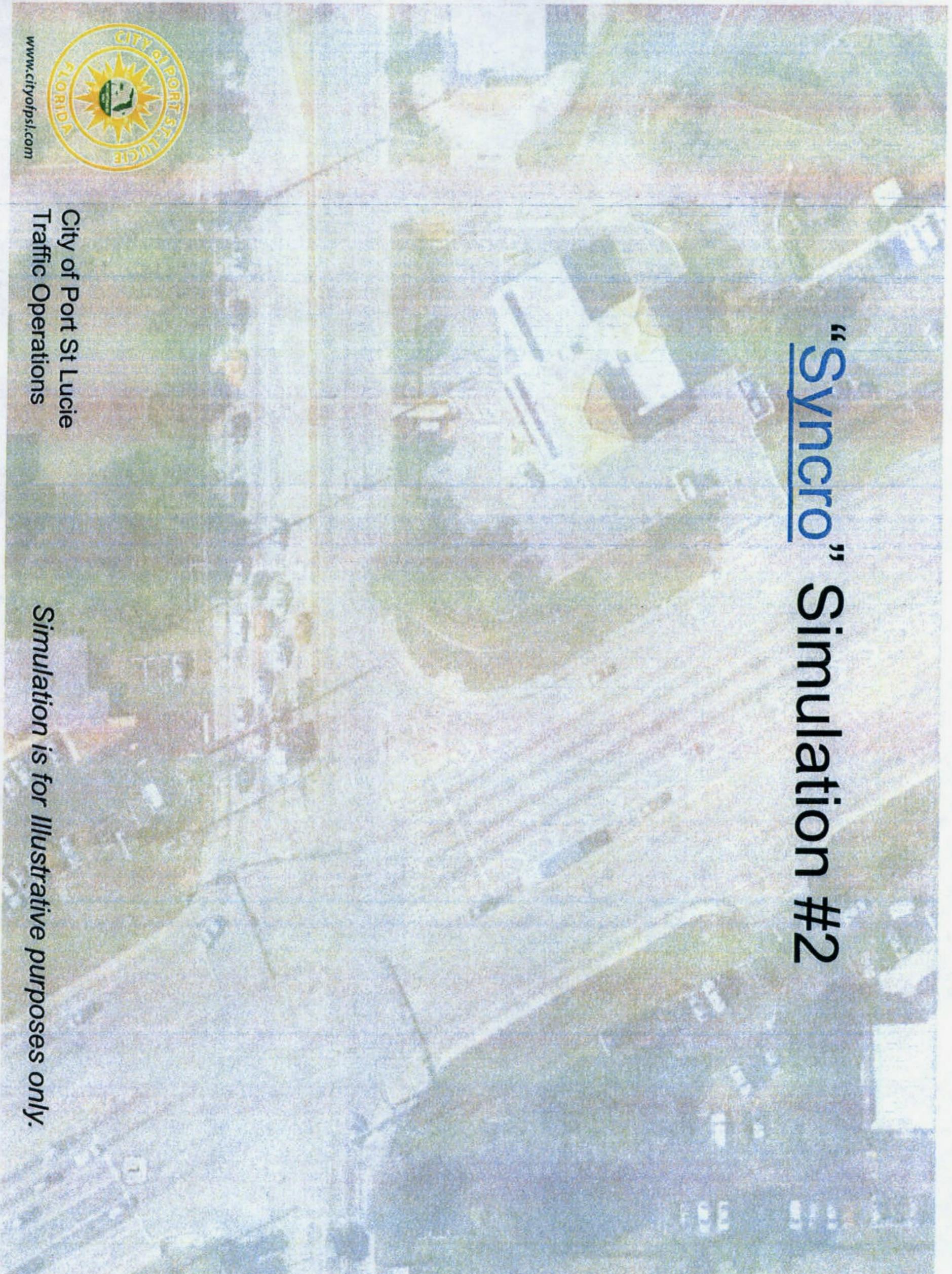
### US-1

- One additional NB left turn lane on US-1 was added to alleviate the increased traffic volumes.

### Port St Lucie Blvd

- EB single left turn lane on Port St Lucie Blvd may impact the thru lane during peak hours.
- Lack of an “overlap” EB right turn lane on Port St Lucie Blvd significantly contributed to general congestion at the intersection.
- Lane designation changes on EB Port St Lucie Blvd caused confusion for drivers.



An aerial photograph of a city street intersection, likely in Port St Lucie, Florida. The image shows a multi-lane road with a central median. Several cars are visible on the road, and there are some white lines and markers overlaid on the pavement, suggesting a traffic simulation. The surrounding area includes green spaces, trees, and buildings. The overall scene is presented in a slightly desaturated, blue-tinted color palette.

# “Syncro” Simulation #2

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# May 2012 Traffic Signal Modifications



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# “Synchro” Simulation #3 (Over Capacity)

## 2012 Signal Timing Modifications

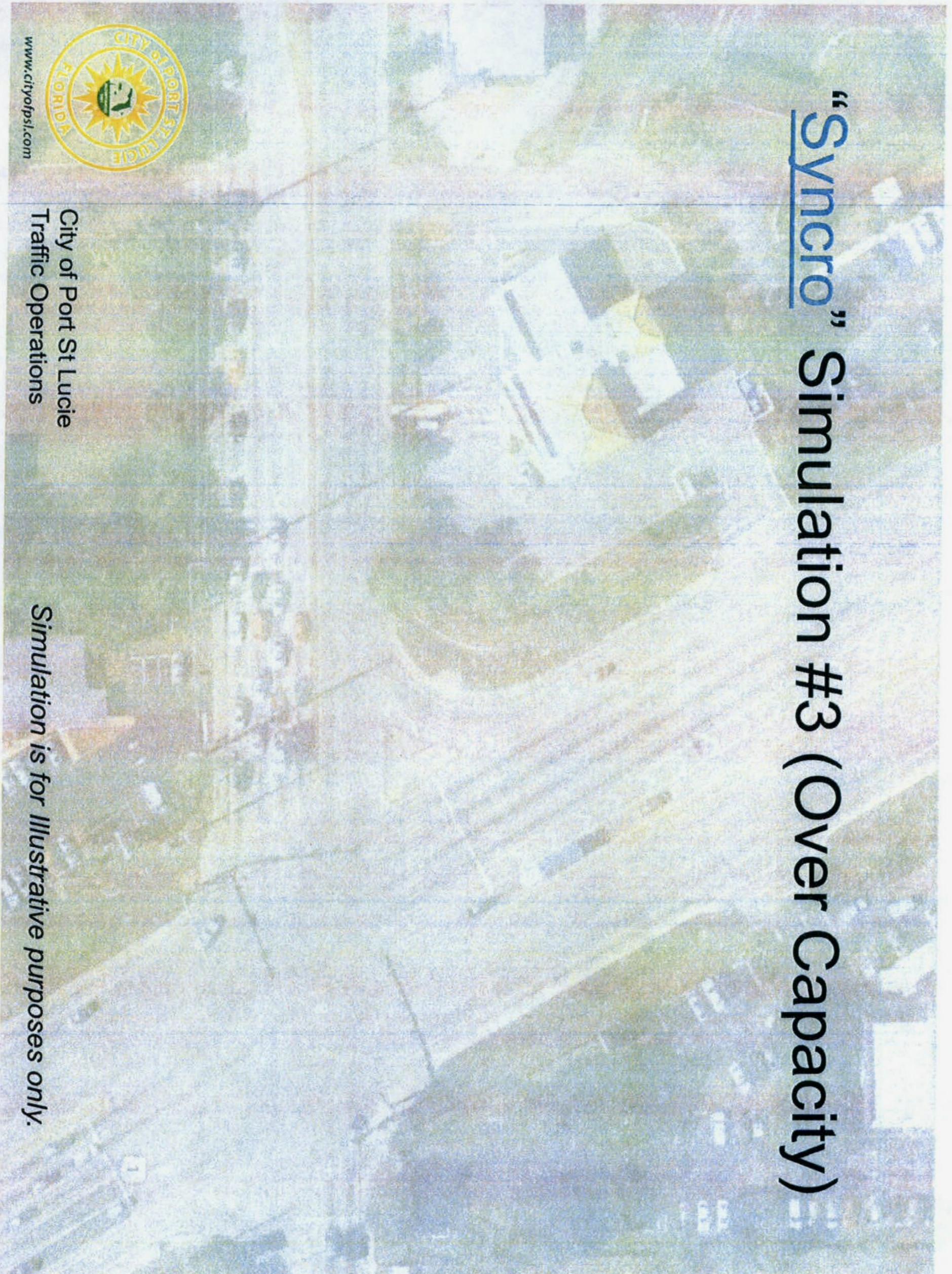
- EB left turn time on Port St Lucie Blvd increased from 35 to 46 seconds.
- EB thru time on Port St Lucie Blvd(including dual right turn lanes) increased from 25 to 51 seconds.
- Dual “overlaps” on right turn lanes on Port St Lucie Blvd give an additional 41 seconds to relieve EB approach .
- EB “No Right Turn On Red” on Port St Lucie Blvd allows for pedestrian crossing.
- Additional signs and pavement markings on EB Port St Lucie Blvd provide driver with more information regarding lane assignment.



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# “Synicro” Simulation #3 (Over Capacity)



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# “Synicro” Simulation #4 (Typical Conditions)

## 2012 Signal Timing Modifications – Typical Conditions

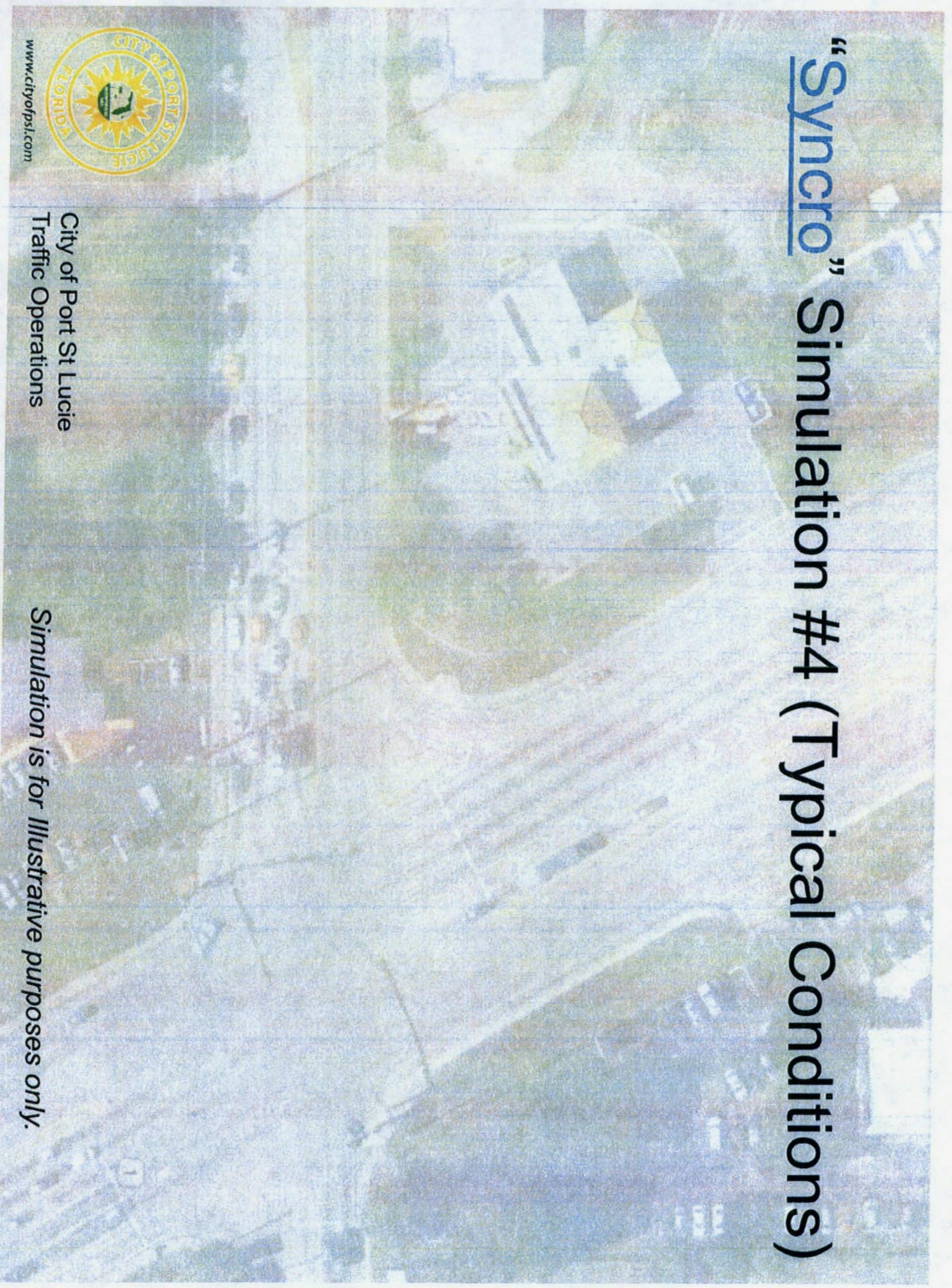
- EB Left Turn time on Port St Lucie Blvd increased from 35 to 46 seconds.
- EB Thru time on Port St Lucie Blvd (including dual rights) increased from 25 to 51 seconds.
- Dual Right Turn overlaps on Port St Lucie Blvd give an additional 41 seconds to clear EB approach.
- EB “No Right Turn On Red” on Port St Lucie Blvd allows for pedestrian crossing.
- Additional signs and pavement markings on EB Port St Lucie Blvd provide driver with more information regarding lane assignment.



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# “Syncro” Simulation #4 (Typical Conditions)



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