Downtown Two-Way Conversion

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Overview

- Smart Streets Initiative
- Traffic Study
- Implementation Schedule
What is our Smart Streets Initiative? “It’s redefining the role of streets”
Principles

1. Create a street network that supports communities and places
2. Create a street network that attracts and sustains economic activity
3. Maximize transportation choice
4. Integrate the street network with natural systems
5. Respect the natural and built environment
6. Emphasize walking as the fundamental unit of the street network
7. Create harmony with other transportation networks
Why Smart Streets?

- Pedestrian Safety
- Circulation Network Connectivity
  - Reduces out of direction travel distances and motorist confusion
  - Benefits ‘trips serving’ by providing more direct routes to destinations
- Economic Vitality
Pedestrian Safety
Network Connectivity
Network Connectivity
Vibrant urbanism is economic development

Dull, inert cities, it is true, do contain the seeds of their own destruction and little else.

But lively, diverse, intense cities contain the seeds of their own regeneration, with energy enough to carry over for problems and needs outside themselves.

Jane Jacobs
Death & Life of American Cities
It is important to note that based on the analysis presented here, the contribution that 21st-Century streets can make to local economies applies just as much to lower-income neighborhoods with “mom & pop” retail as to glitzier areas with sky-high rents. Better streets provide benefits to businesses in all types of neighborhoods, from the central business district to modest retail strips in residential areas."
Value of “PLACE”

County Property Taxes/Acre

Ratio Difference of 15 City Sample Set

- Residential
- Commercial
- Mixed-Use

$415.00

Average county property tax/acre ratio across sample set of 15 different cities from Montana to Florida.
Smart Streets Initiative

- Redefine the role of streets to serve all modes “Complete Streets”
  - Walkability, Mixed Land Uses, Connected Street network
  - Goal is to create a vibrant urban core

- Projects
  - Jefferson Streetscape
  - Downtown Two-Way Conversion
  - Westside Corridor Revitalization Plan
Project Location

Downtown One-Way to Two-Way Street Conversion
Downtown Two-Way Conversion

- Existing One-Way Pairs
  - Michigan/St Joseph Streets & Main Street (Red)
  - Lafayette Boulevard & William Street (Purple)
  - Madison Street & Marion Street (Green)

Downtown counts on 2-way streets to get going

1985
Complete Streets & Road Diets

Existing

Proposed

Main Street - Typical (Mill & Fill & Rehabilitation)
Wayne Street to LaSalle Avenue
(Long-Term Solution)

* 50'-0" from Wayne Street to Washington Street
25% Full Depth Patching
Conceptual Plan

• Two-way traffic on the following streets:
  o William Street
  o Lafayette Blvd
  o Main Street
  o Michigan Street
  o St Joseph Street

• Roundabouts at key locations to aid in traffic distribution

• Implement Road Diets & Complete Streets Philosophy
Concept Plan

Add existing & proposed typical sections here

Add existing & proposed typical sections here

Add existing & proposed typical sections here
Traffic Study
Traffic Study Overview

Study Limits

Study Process

- Data Collection
- Travel Demand Modeling
- Capacity Analysis
- Simulation Models
- Recommendations & Documentation
Data Collection

- 8-hr TMCs at 67 intersections
- 48-hr bi-directional counts at 10 Locations
- INDOT counts at various locations
- Origin-Destination data
TAZs and O-D Data

- TAZs
  - Areas of similar land use
  - User defined

- O-D Data
  - Based on cell phone data
  - Start & end point of trips
  - Time stamped

Airsage
The power of where and when
Travel Demand Modeling

- VISUM model of existing conditions
- Equilibrium Model
- Calibrated to exiting traffic counts

![Graph showing the relationship between Visum Volumes and Counted Volumes]

- Traffic Counts
- O-D Data
- Existing Network
- TAZs

One-Way Traffic Volumes

Equation: $y = 0.9909x + 1.5832$

$R^2 = 0.99$
Travel Demand Modeling

- Change roadway network from existing to proposed
- Reassigned traffic to roadways using equilibrium model

Proposed Conditions

Two-Way Traffic Volumes
Conceptual Plan Refinements

• Evaluate & justify elements of conceptual plan:
  o Chippewa Avenue Roundabouts
  o Western Roundabout
  o # of lanes on Main & St Joseph Streets
  o Plaza Connection
  o LaSalle Ave Typical Section
  o MLK Roundabout

• Iterative evaluation process
MLK Roundabout

Conceptual Plan

- Single lane roundabout operates well
- Not critical to 2016 implementation
- Requires R/W acquisition
- Derived from prior study of Lincoln Way corridor & neighborhoods
- Economic development emphasis

Revised Concept

- Signalized intersection operations are comparable to those of roundabout
- No R/W acquisition required
- Consider roundabout as a future project
Plaza Connection

Conceptual Plan

- Traffic flow is not dependent on this connection
- Significant interest from the public
- Reconnection of grid fits Smart Streets concept

Revised Concept

- Connection needed to Main & Michigan Street traffic volumes manageable
- Retain existing configuration of St Joseph & Michigan Streets
- Consider Plaza Connection as a future project
LaSalle Avenue

Conceptual Plan

- 2-Lane typical section of LaSalle Ave results in gridlock

Revised Concept

- 4-Lane / 5-Lane Section needed to maintain traffic flow
- Add left turn lanes between Lafayette Ave and Main Street
Sample Street

Conceptual Plan

- Single through lanes in north & south directions

Revised Concept

- Provide 2 northbound thru lanes on Main Street
- Provide 2 southbound thru lanes on Michigan Street
- Add left turn lanes to Sample Street
Western Roundabout

**Conceptual Plan**
- Not critical to 2016 implementation
- Significant R/W acquisition required
- Roundabout needed when Plaza Connector is completed

**Revised Concept**
- Retain existing alignments & termini
- No R/W acquisition required
- Acceptable operations for approx. 8 years
Chippewa Avenue

Conceptual Plan

- Significant R/W acquisition required for Main Street modifications
- Stop controlled intersections will not accommodate future traffic volumes

Revised Concept

- Minimal R/W acquisition required
- A signalized intersection at Main Street operates better than original concept
Revised Concept

- Signal/ Roundabout combination at Chippewa Ave
- Western Ave
  - Interim: Signalized
  - Ultimate: Roundabout
- Retain existing St Joseph & Michigan Street termini
- Retain 4-lane/5-lane section on LaSalle Ave
- Potential future projects:
  - Western Roundabout
  - MLK/LWW intersection improvement
  - Plaza Connector
  - Main/Chippewa Roundabout
Typical Sections
Marion St & Bartlett St Roundabouts

• Roundabouts distribute traffic to north-south roadways
• Improved ingress/egress to hospital
Chippewa Avenue

- Roundabout distribute north-south traffic between Main & Michigan Streets
- Signal accommodates design year volumes at acceptable LOS
Main Street

- Two-way traffic
- Center turn lane
- Parking along both sides
- Bikes separated from vehicles
- Streetscape
St Joseph Street

- Two-way traffic
- Center turn lane
- Parallel parking where space permits
- Bike path on east side
# Traffic Signal Warrants

- Evaluated 4 of 9 warrants
- Used 2014 2-way volumes from TDM

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<th>Warrant</th>
<th>Description</th>
<th>Applicable</th>
<th>Comment</th>
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<tr>
<td>1</td>
<td>8-Hour Vehicular Volume</td>
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<td>2</td>
<td>4-Hour Vehicular Volume</td>
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<td>3</td>
<td>Peak Hour Vehicular Volume</td>
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<tr>
<td>4</td>
<td>Pedestrian Volume</td>
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<td>Pedestrian volumes not available</td>
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<td>5</td>
<td>School Crossing</td>
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<td>No schools near study</td>
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<tr>
<td>6</td>
<td>Coordinated Signal System</td>
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<td>Signal spacing is largely &lt; 1,000 ft</td>
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<td>7</td>
<td>Crash Experience</td>
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<td>Crash patterns are expected to change with two-way conditions</td>
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<td>8</td>
<td>Roadway Network</td>
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<td>9</td>
<td>Grade Crossing</td>
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<td>No at-grade rail crossings in study area</td>
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Existing Traffic Control Types

[Diagram of a street network with labels for existing traffic control types, including 'Signalized', 'TWSC', 'Roundabout', and 'AWSC'.]
Recommended Traffic Control Types
Capacity Analysis

- Signalized & Unsignalized Intersections - SYNCHRO
- Roundabouts – SIDRA
- All results reported using HCM 2010 methodology
- AM & PM peak hour analysis
- 3 Scenarios:
  - 2014 Existing
  - 2014 Proposed
  - 2038 Proposed
- LOS Goal: LOS D or better

Typical Intersection Configuration
2014 PM 2-Way Conditions
2038 AM 2-Way Conditions
Traffic Study
Findings/Recommendations

• Downtown Two-way conversion is feasible
• Retain existing alignment and termini of St Joseph & Michigan Streets
• Retain 4-/5-lanes on LaSalle Ave
• Construct Bartlett, Marion & Michigan/Chippewa roundabouts in 2016
• Add N-S through lanes at Sample Street
• Standard intersection lane configuration works in most locations
• Right turn lanes are needed in various locations
• Consider the following as future projects:
  o Western Roundabout
  o MLK/LWW intersection improvement
  o Plaza Connector
  o Main/Chippewa Roundabout
Implementation
Implementation

• Coordination
• Phasing
• Funding
Coordination

- With INDOT
  - INDOT is supportive of City’s goals for Complete Streets Philosophy
  - Perform work on permit basis
  - Working with Open Roads Philosophy

- With Consultants
  - Several consultants
  - Aggressive schedule
  - Various phases
## Phasing

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<th>2014</th>
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<th>2016</th>
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<td></td>
<td>Qtr 2</td>
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<td>Lincolnway Corridor Improvements</td>
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<td>Marion Street Roundabout</td>
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<td>Chippewa Avenue Intersections</td>
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<td>Main Street, Michigan Street, St. Joseph Street Conversion</td>
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### Legend
- **Design**
- **Construction**
- **Traffic Signal Conversion**
Lafayette Blvd & William Street

- Traffic study completed in 2011
- Construction completed in late 2014
- Public comments to date are overwhelmingly positive
Funding

• $25M in TIF bonds being sold to fund construction of revised concept
• Pursue additional funding sources for future highway projects using federal highway funds
Future Projects

MLK Roundabout
Western Roundabout
Plaza Connection
Main/Chippewa Roundabout
Questions

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