Presenter

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Project Manager for I-475/US 23 & US 20 Interchange and I-475 and US 23 Interchange Projects (PID 88252 and 94732)
Project Team

Prime:
- The Mannik & Smith Group, Inc

Subconsultants:
- Burgess & Niple
- Northwest Consultants
- GPD Consultants
- ASC
- Barr & Prevost (later JTM)
- Resource International
Challenges

- Right-of-way Constrained
- Weave Issue
- Closely Spaced Interchanges
- Left Ramp
- Southbound Drop Lane
- Closely Spaced Signals on US 20
Project Scope at the Start

- Interchange Modification for I-475/US 20 and US 20
- I-475/US 23 3rd lane addition

Project Scope at the End

- Interchange Modification for I-475/US 20
- I-475/US 23 3rd lane addition
- Interchange Modification I-475 & US 23
Project Location

I-475/US 23 & US 20 Interchange

3rd Lane Addition ~2 Miles
Defining the Routes

I-475

US 23

I-475/US 23

I-475
Major Traffic Movements
The IMS Process

Alternatives Evaluated
- Minor Modification – Lane Additions
- 3 Quadrant Interchange
- DDI
- SPUI

Purpose and Need
- Improve Ramp Capacity
- Improve US 20 Capacity
- Improve Safety
- Address Geometric Deficiencies
Weave Area Flaws – Barriers to Interchange Modification Success
Weave Area Flaw – Short Distance

2,500’ Weave Area
Weave Area Flaw - I-475 Westbound Left Ramp
Weave Area Flaws – Southbound Drop Lane
Animation on the Weave
Conclusion

The I-475 /US 23 Interchange could not be improved without addressing the weave problems.
The Weave Solution

Current 2 Lane Pavement Striped to 1 Lane
Left Merge
1 Lane Weave
US 23 Drop Lane

Open Both Travel Lanes
I-475 to US 20 Off Ramp Combined with SB US 23 to US 20 Ramp Lane

Legend
- Exit I-475 to SB I-475/US 23
- Exit I-475 to SB I-475/US 23
- Exit SB US 23 to US 20 Ramp
- Exit SB US 23 to SB I-475/US 23

Mannik Smith Group
Video Animation on the Weave Fix

I-475/US 23
WEAVE CORRECTION
Weave Solution

- New alignment of US 23 southbound
- 2 new bridges plus 1 bridge widened
- No R/W required
- Negligible Environmental Impacts
- $10 Million in Safety Funds, $2 Million District money
- $15 Million Project, $3 Million Gap
- 10 Months to complete plans to meet Safety Funds Fiscal Year

With Weave Problem Solved – The IMS could proceed
Right-of-Way Restrictions

- BP Gas Station
- Car Dealership
- Bob Evans
- Homes
- Homes
- Homes
Free Real Estate

Free Real Estate!!!!!
Wetlands
Minor Modifications

- Did not achieve the desired level of service
- Had major property impacts
Tight Urban Diamond

- Did not achieve the desired level of service
- Had major property impacts
SPUI and DDI Had comparable performance

- DDI geometry did not work on realigned US 20 and had higher R/W impacts
Tight Diamond on Realigned US 20

- Could not avoid major property impacts
- DDI would not work on a re-aligned US 20
IMS Preferred Alternative

SPUI with Realigned US 20 (Central Avenue)

- Build Interchange in the infield area
- Build Bridge “Offline”
- US 20 Access Managed with Median
- Minimize Property Impacts
Project Overlap

- Color Coded: “Blue” Systems Interchange, Red SPU1 US 20 Interchange
- Projects on Different Schedules
- Different PIDs, Authorization and Funding
- How Did OSU and UM Rivalry weave in –Blue north project, Red south project!
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Property Impacts

- No Take on Bob Evans
- No Take on Car Dealership
- 2 Single Family Homes Taken
- Impacts to BP

Even a temporary right-of-way impact can be an invitation to a court date
2 Homes Taken
Rails to Trails – Parkland

- Needed to avoid impacts to Rails to Trails Multi Use path
Bridges

- New US 23 on new alignment
- New I-475/US 23 on new alignment
- Widened former I-475/US 23 now US 20 off ramp
- SPUI
New US 23

- Challenging Vertical Profile
- Skewed crossing of I-475
Two Bridges Crossing Blossman Road

- Widened I-475/US 23
- New SB I-475/US 23
Two Bridges Crossing Blossman Road

- I-475/US 23 – “Franken-Bridge”
SPUI Bridge
Aesthetics – Bridge and MSE Walls
Aesthetics - Noise Wall
Aesthetics - Landscaping
Final Product
The Weave Lives on

- Same Weave Fix in construction in Perrysburg Ohio
The SPUI on a Realigned Route Lives On

- Southfield Freeway (M-39) and Michigan Avenue (M-12)
A Big Hand to the Construction Crews and Inspectors

Would you use a porta-potty located 3 feet off of an interstate travel lane, adjacent to a pile driving operations and in the path of a Cat excavator?
Thank You!

Questions?