

**MOVE  
ILLINOIS**



The Illinois Tollway

**DRIVING  
THE FUTURE**



I-94 at Grand Avenue Interchange:  
The Ride before the Roller Coaster

# Introduction

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- **Presenters**
  - Lanyea Griffin, Executive Project Engineer, Illinois Tollway
  - Rob Deming, Project Manager, Primera Engineers, Ltd.
- **Design Project Team (DSE)**
  - **Primera-EJM JV:** Primera Engineering Ltd. & EJM Engineering, Inc.
  - Subconsultants: Terra Engineering, Ltd., Sanchez & Associates, P.C., Garza Karhoff Engineering, LLC, Huff & Huff, Inc. & GSG Consultants, Inc.
- **Construction Management Team (CM)**
  - Accurate Group, Inc.
- **Contractor (GC)**
  - F.H. Paschen SN Nielsen, Inc.

# Agenda

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- **Project Overview**
- **Design**
- **Construction**

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## **Project Overview**

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# Tri-State Tollway (I-94)/Grand Avenue Interchange

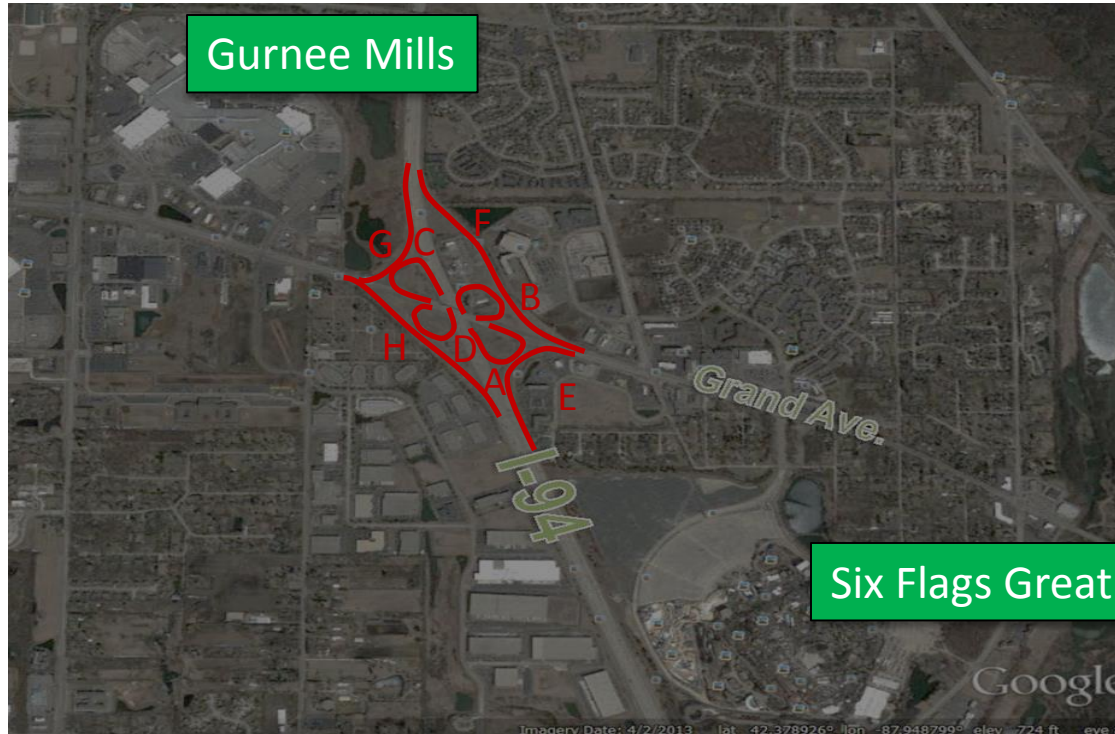


# Major Generators



Imagery Date: 4/2/2013 lat: 42.378926° lon: -87.948799° elev: 724 ft eye alt:

# Major Generators



# Six Flags Great America

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# Congestion

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**Project Design**

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# Design Overview

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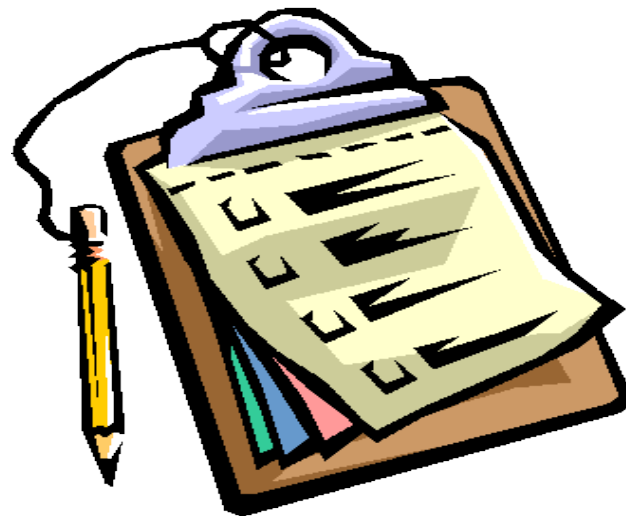
Goals for the Project

Deficiencies

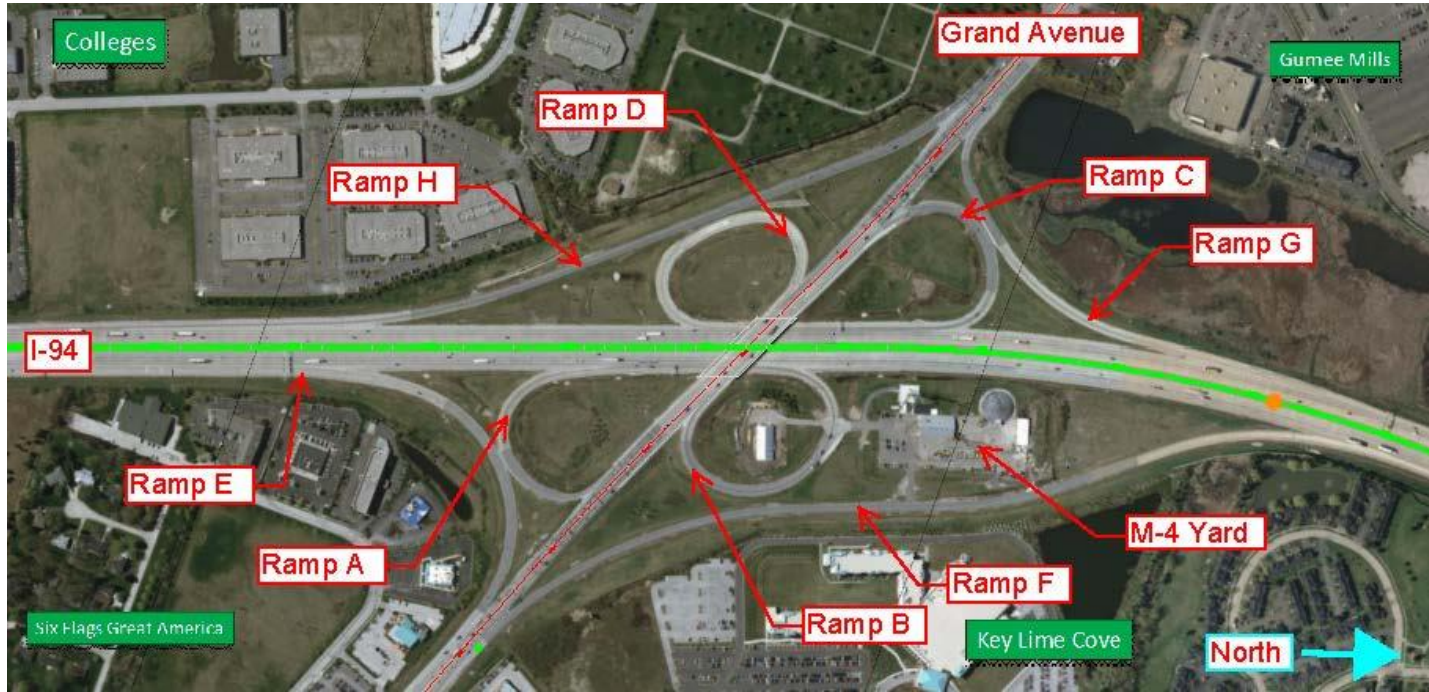
Design

Environmental Issues

Stakeholder Involvement



# Existing Conditions



# Improvement Goals

Improve Traffic flow

Vehicular Safety →  
Ramp E (Accidents)

Deficiencies in  
geometry, drainage,  
safety features, and  
interchange lighting

Complete an IDS for  
the following Types  
of interchanges



*Improved Full Cloverleaf*



*Improved Full Cloverleaf with Collector-Distributor Lanes*



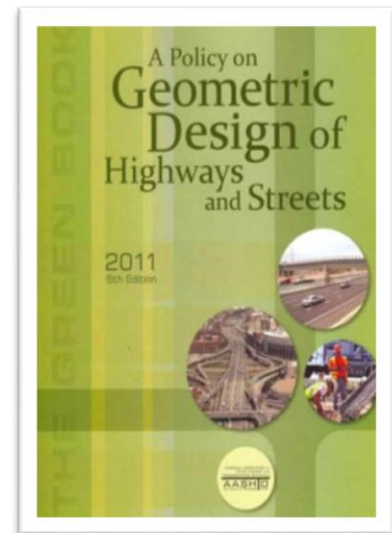
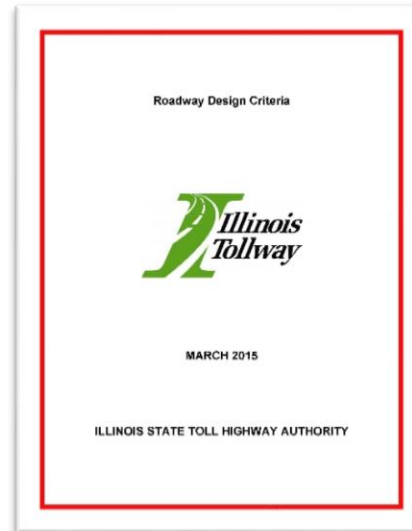
*One Quadrant Partial Leaf Clover w/NB Collector-Distributor Lane*

# Project Design

Schedule

Design Steps

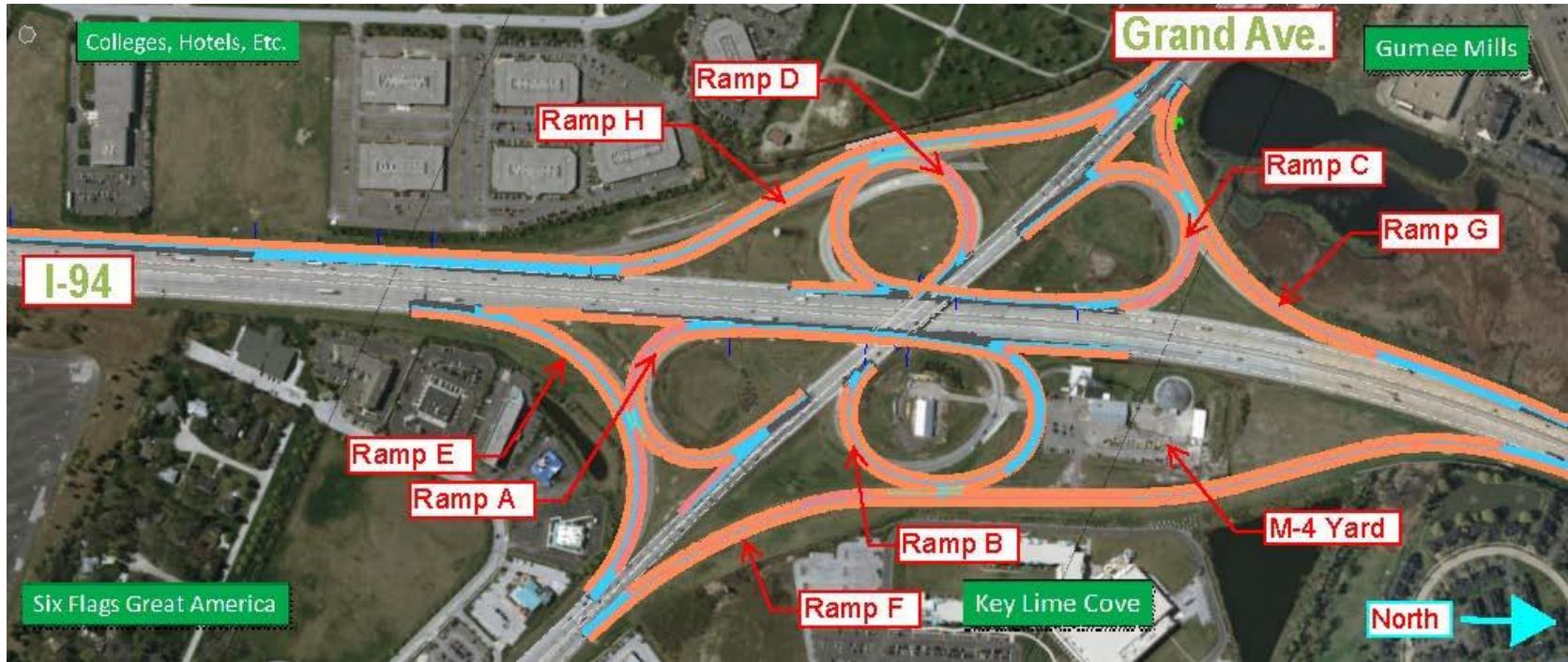
Final Design with the  
Constraints



# Design Deficiencies

Element	Noted Deficiencies	Requirements
Loop ramp speed	23 mph	30 mph
Loop ramp radii	200 feet (28 mph)	214 feet (30 mph)
Lane widths	14 feet	16 feet
Auxiliary lane length	1,000 feet	1,500 feet
Mainline profile grades	0.2 percent	0.3 percent
Profile grades	0.02 percent	0.5 percent
Superelevation	Up to 10 percent	8 percent
Ramp superelevation distribution	58 percent	80 percent

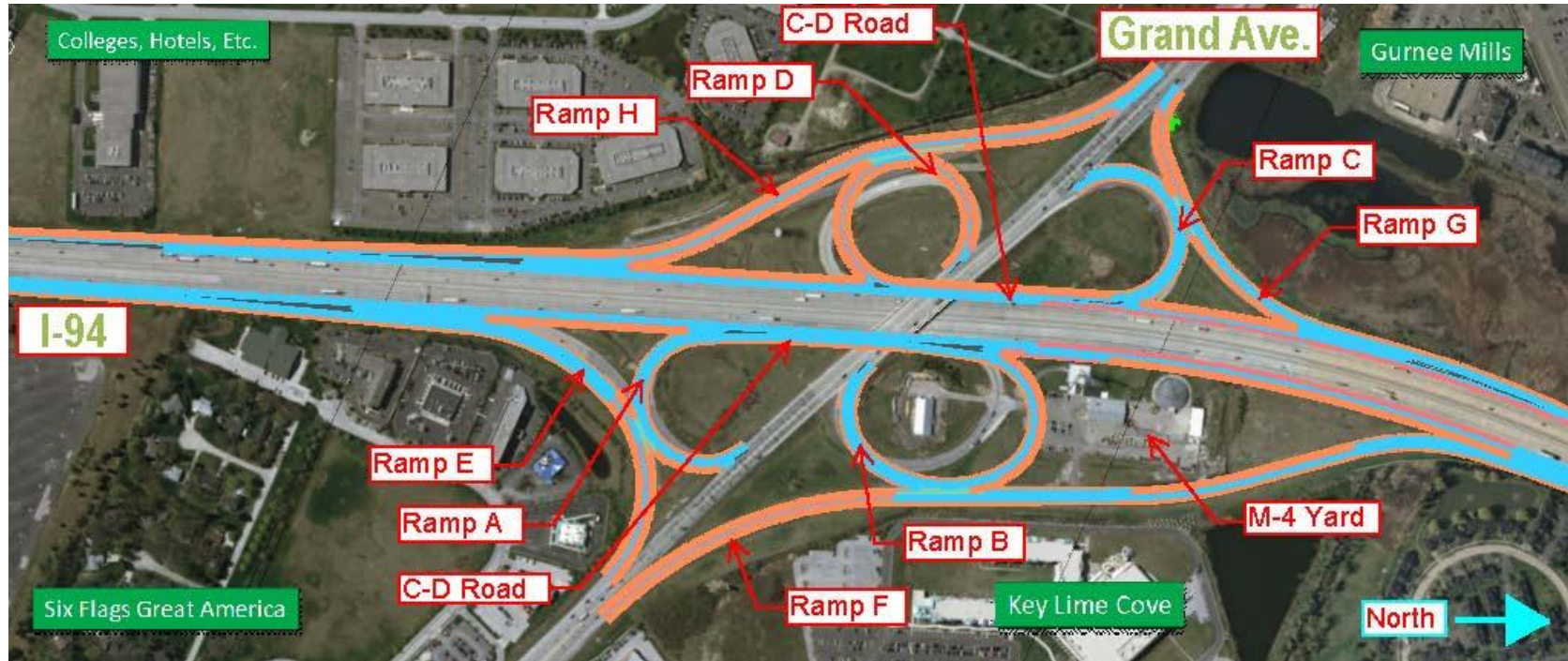
# Interchange Type Study Alternate A



Improved Full Cloverleaf - \$30 million

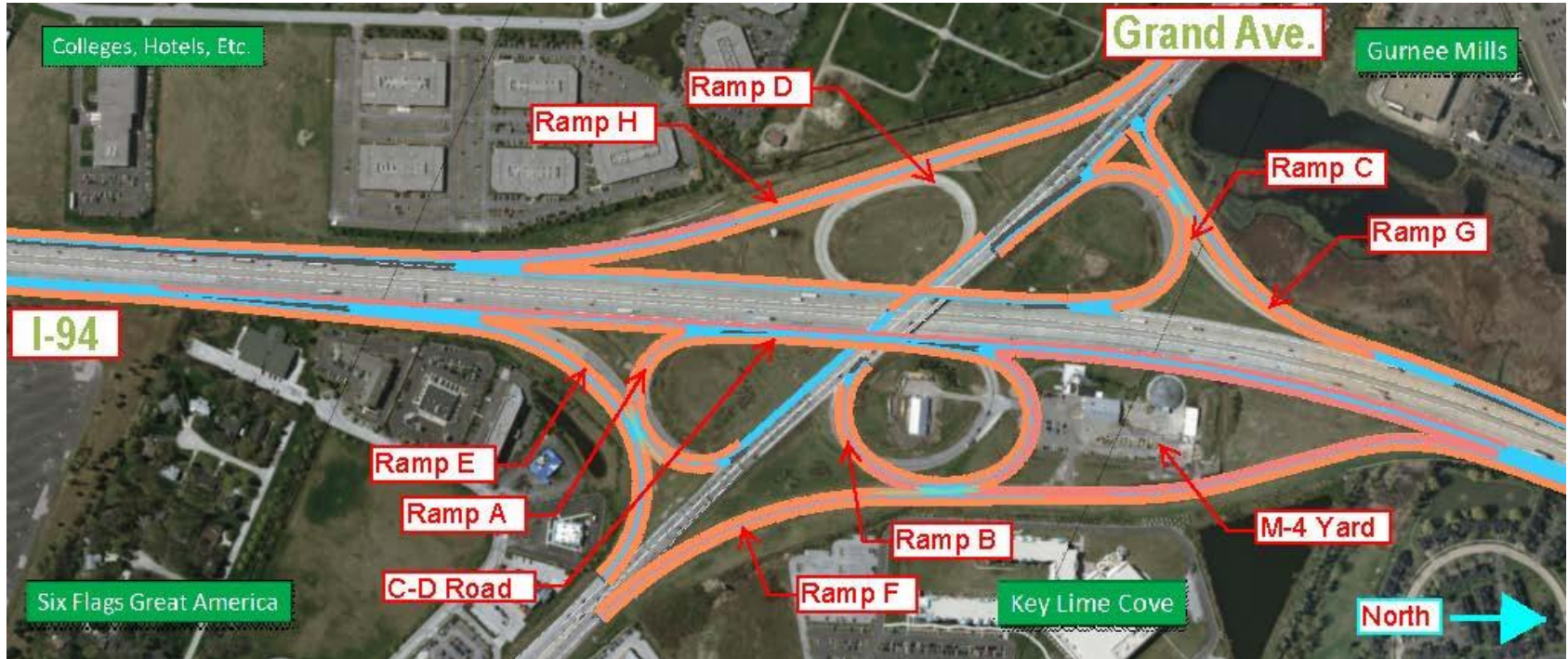


# Interchange Type Study Alternate B



Improved Full Cloverleaf with Collector-Distributor Lanes - \$35 million

# Interchange Type Study Alternate C



1 Quadrant Partial Cloverleaf w/ NB Collector-Distributor Lane - \$26 million

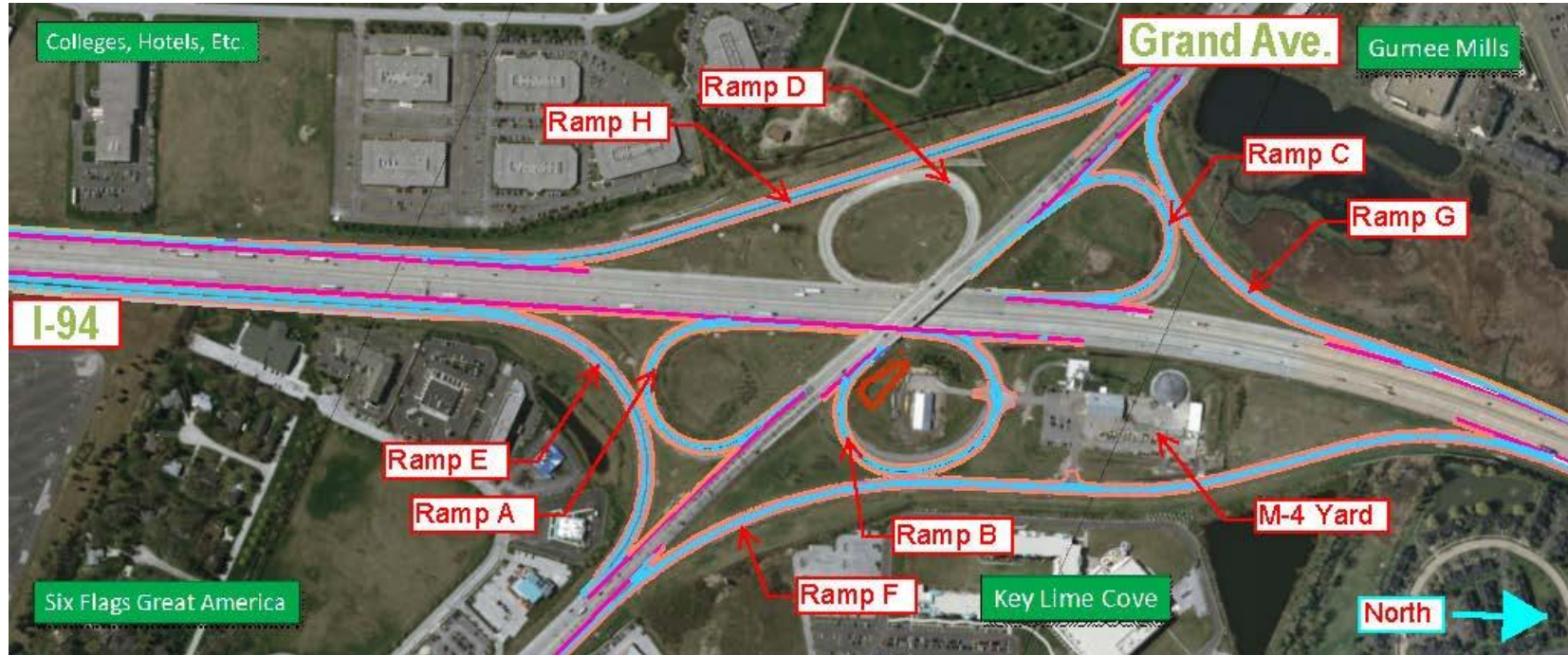
# Design Overview – Project Design

## What is a Collector-Distributor Road?

A collector-distributor road is a type of road that parallels and connects the main travel lanes of a highway and frontage roads or entrance ramps. Collector-distributor roads are found at intersections and, in the case of an intersection with a traffic signal, allow motorists to bypass the signal by driving under the intersecting road, much like an underpass. A collector-distributor is similar to an exit ramp, but is typically longer than an exit ramp, and has the advantage of allowing drivers to bypass traffic signals at intersections.



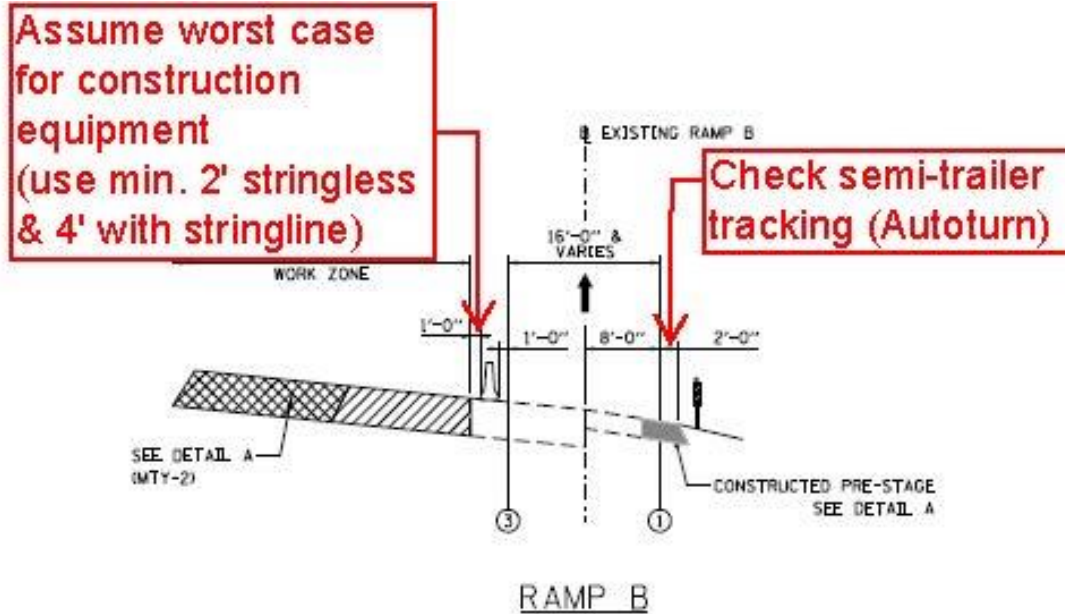
# Final Design - Hybrid



Replace Loop Ramps A, B, C & Directional Ramps E, F, G, H - \$20 Million



# Design Checks – Ramp Staging



# Six Flags Ramp Design Considerations

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- **Ramp E – Traffic from Chicago area to Six Flags Great America**
  - The design extended the Ramp E 2 lane ramps 1200' and added a another 1500' single dedicated ramp lane to give additional capacity with a concrete barrier wall to separate mainline traffic with ramp traffic.
  - The barrier will eliminate drivers from getting out of ramp traffic and trying to reenter further up during a back up.
  - Tight Right-of-Way
    - Had to construct a retaining wall due to the ROW.
    - Along with the additional lane and normal shoulder, a snow shoulder was installed to create a area for the snow while leaving the shoulder open for emergencies and safety

# Existing Versus Proposed Ramp E



Ramp E – Existing



Ramp E – Proposed





# Environmental Considerations

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**Wetlands and Waters of the US  
(WOUS)**

**Tanker Spill**

# Tanker Spill Remediation



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**Construction**

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# Stake Holder Involvement

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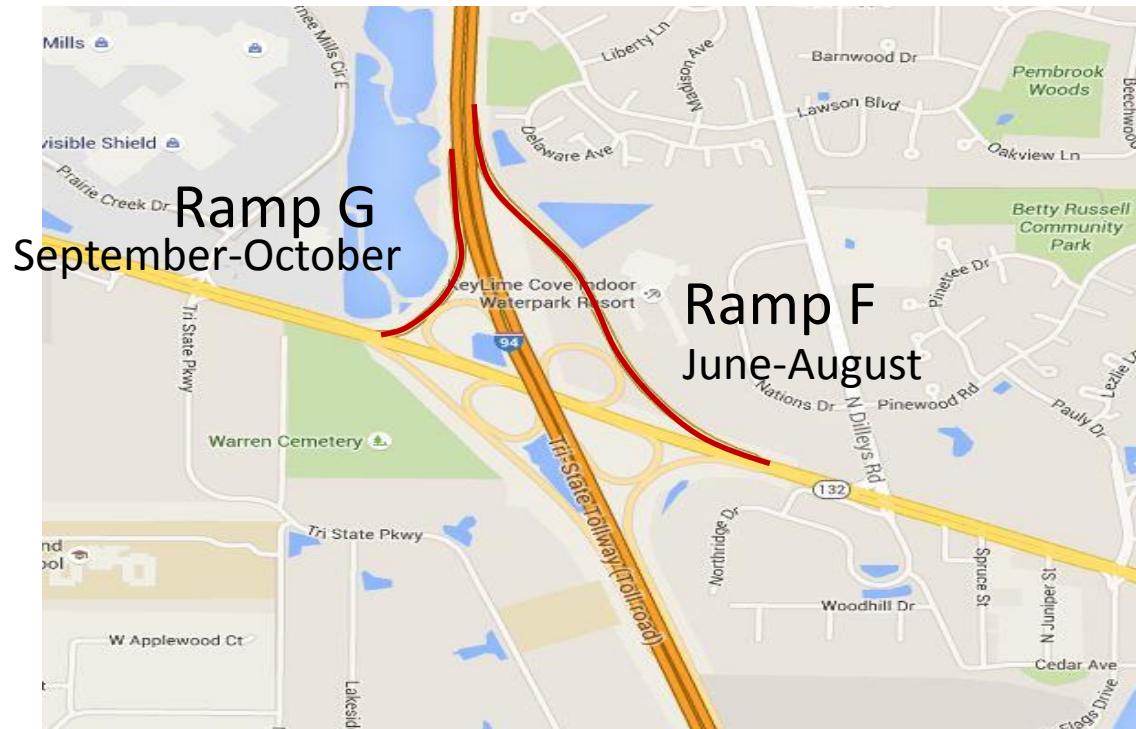
- **Multiple meetings with Tollway and major stakeholders to discuss detours, permits, maintenance of traffic and project progress**



**Tollway  
M-4  
Yard**



# Stakeholder Schedule Request



# 2014 Construction Schedule

- WB Grand to North on I-94 (Ramp F)
- South on I-94 to WB Grand (Ramp G)
- North on I-94 to WB Grand (Ramp B loop)
- EB Grand to southbound I-94 (Ramp H)



# Staged Construction

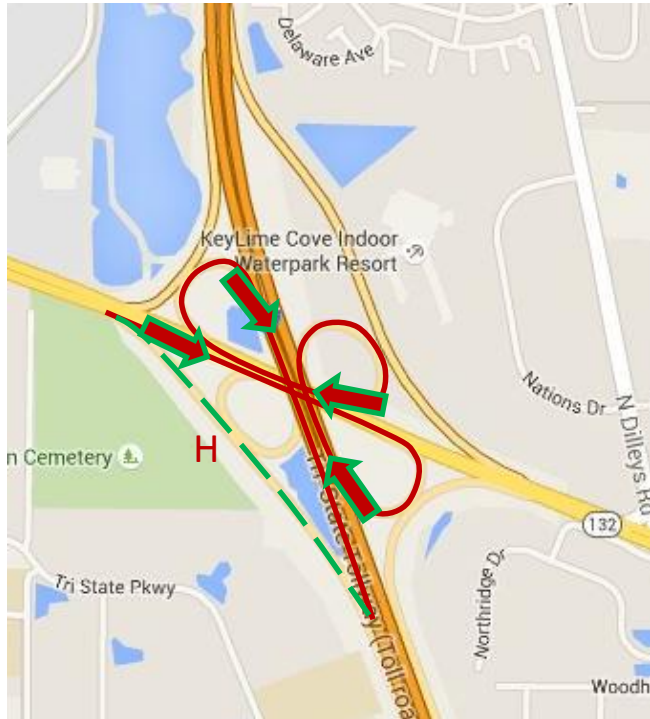
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- **Typical Paving Train**





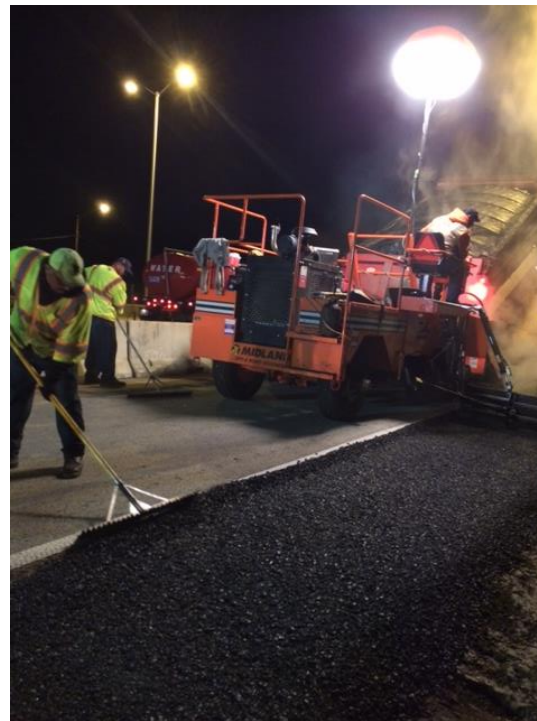
# Ramp H Detour



- **3 Loop Detour**

# Off-Peak Ramp Work

- **Four foot temp pavement section required ramp shut down during off-peak hours**



# The Great Cement Shortage of 2014



# Ramp G Complete

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# Ramp F Complete

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# Ramp H During Winter Shutdown

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# Ramp B Light Pole Installation

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# Retaining Wall A

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# 2015 Construction Overview

- **WB Grand to South on I-94 (Ramp C)**
- **EB Grand to North on I-94 (Ramp A)**
- **North on I-94 to EB Grand (Ramp E)**



# Ramp B Complete

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# Ramp H Complete



# Ramp H Merge



# Ramp E Advanced Signing



# Ramp E Advanced Signing (Con't)

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132  
Grand Ave  
EAST 1/4 MILE  
WEST 1 1/4 MILES



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- **Questions?**

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**THANK YOU**

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