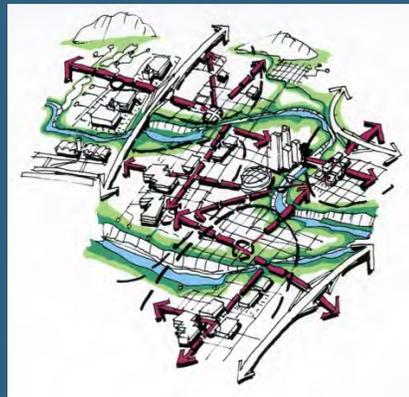




A MnDOT Context Sensitive Solutions (CSS) Webinar

Integrating Construction, Operations and Maintenance
into Transportation Planning and Design:
Early Communications Translating to Project Success



Scott Bradley – MnDOT Director of Context Sensitive Solutions – March 28, 2012

*To submit a question or comment via email at any time, click on the
“Ask a Question” bubble icon in the upper left corner of your screen.*

Your Destination...Our Priority





CSS Supports MnDOT's Strategic Plan

CSS Designated as a Flagship Initiative in December 2009

Integrating CSS as a business model to:

- Build customer relationships & trust
- Improve processes & decision-making
- Better balance competing objectives
- Seek collaborative & right-sized solutions
- Improve return on investments
- Achieve the benefits correlated with CSS



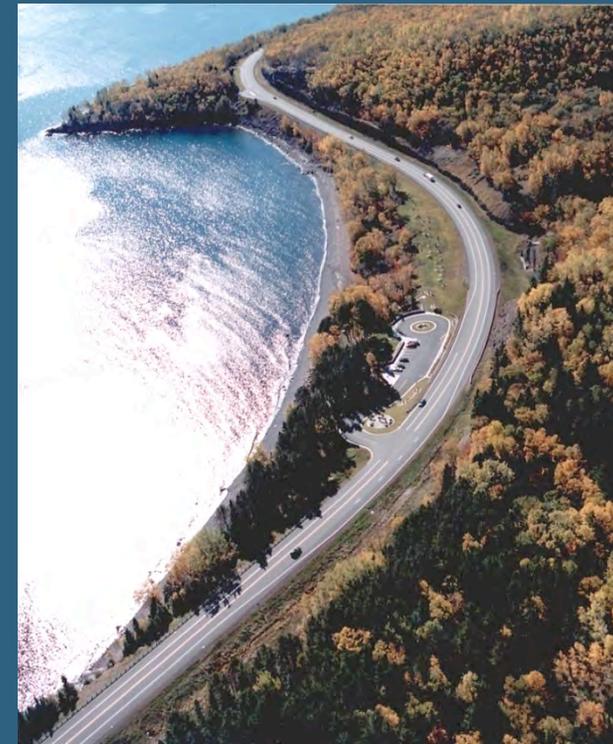


Understanding CSS

As a “Principle-Based” and “Benefit-Driven” Approach



A 2009 National Cooperative Highway Research Program Project Quantified the Benefits of CSS Correlated to Application of CSS Principles



Based Upon 33 Case Studies From Across the United States

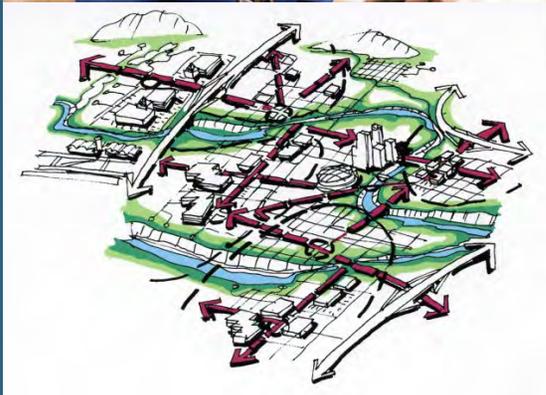
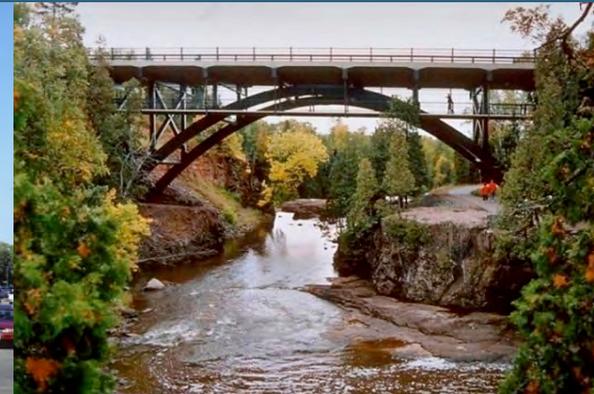
Like MN TH 61 Reconstruction (North Shore of Lake Superior)





Understanding CSS

Philosophy and Principles applying to Programs, Services, Planning, Project Development, Construction, Operations, and Maintenance ...

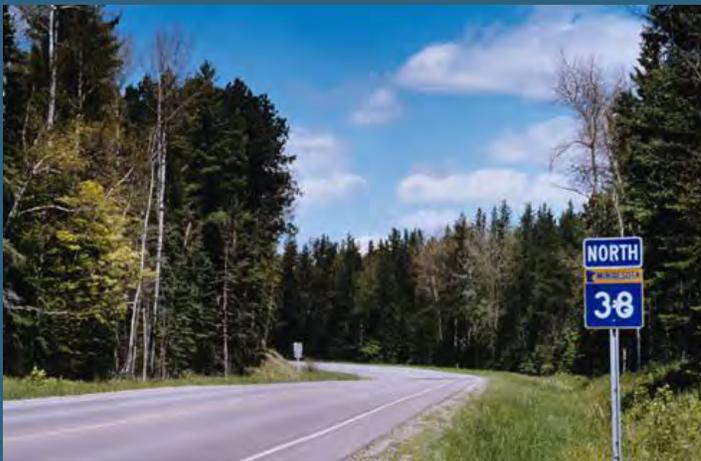




Understanding CSS

The Common FHWA & AASHTO Definition

CSS is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources while improving or maintaining safety, mobility & infrastructure conditions.



TH 38 from Grand Rapids to Effie



CSAH 3 Excelsior Blvd through St. Louis Park





Understanding CSS

The Philosophy as Core Strategies



- Strive towards a shared stakeholder vision to provide a basis for decisions
- Demonstrate a comprehensive understanding of contexts
- Foster continuing communication and collaboration to build consensus
- Exercise flexibility and creativity to shape effective transportation solutions while preserving and enhancing community and natural environments





Understanding CSS Principles

Original 15 Principles “Paraphrased”

- Use interdisciplinary teams
- Involve your stakeholders
- Seek broad public involvement
- Use a full range of communication strategies
- Seek consensus in determining purpose and need
- Address alternatives and all modes of transportation
- Seek safe facilities for all users
- Seek environmental harmony
- Address community and social issues
- Address aesthetic concerns and integrations
- Utilize a full range of design choices and flexibility
- Document all project decisions
- Track and meet all commitments
- Use agency resources effectively
- Create lasting value for communities and the public





Understanding CSS Benefits - Agency Emphasis

Correlated to Applying CSS Principles (NCHRP Report 642)

01. Improved predictability of project delivery
02. Improved project scoping and budgeting
03. Improved long-term decisions and investments
04. Improved environmental stewardship
05. Optimized maintenance and operations
06. Increased risk management and liability protection
07. Improved stakeholder & public feedback
08. Increased stakeholder & public participation, ownership & trust
09. Decreased costs for overall project delivery
10. Decreased time for overall project delivery
11. Increased opportunities for partnering





Understanding CSS Benefits - User Emphasis

Correlated To Applying CSS Principles (NCHRP Report 642)

12. Minimized impact to human and natural environments
13. Improved mobility for users
14. Improved walk-ability and bike-ability
15. Improved safety (motorists, pedestrians, bicyclists)
16. Improved multi-modal options (including transit)
17. Improved community satisfaction
18. Improved quality of life for communities
19. Improved speed management
20. Design features appropriate to context
21. Minimized construction related disruption
22. Improved opportunities for economic development





The Focus We Chose For Today's CSS Webinar

“Early Communications Translating to Project Success”

In 2010 we conducted a Forum on Integrating CSS in Construction, Operations and Maintenance activities ... “communications” was frequently identified and discussed by participants as a particularly important CSS challenge and opportunity ...





The Focus We Chose For Today's CSS Webinar

“Early Communications Translating to Project Success”

Top Ranked Priorities for Improving Communications Included:

- Involve construction , operations and maintenance staff in pre-construction processes and meetings (so they understand and inform decisions and commitments made)
- Integrate “CO&M” staff in systematic design review meetings
- Manage effective knowledge transfer “cradle to grave” throughout project development
- Document all commitments and everything (agreements, etc.) that lead to choices considered and decisions made
- Institutionalize post-construction communications between “CO&M” representatives and pre-construction and other internal stakeholders to determine lessons learned
- Clearly communicate all expectations and requirements before entering into construction and maintenance agreements with cities and counties
- Fully communicate the requirements, trade-offs, costs and MnDOT capabilities regarding facilities we are involved in planning, designing, constructing, operating and maintaining





CSS Webinar Presenters

Jack Broz, PE (Moderator) (Transportation Group Leader – H.R. Green Co.)

Scott Bradley, FASLA (Director of Context Sensitive Solutions – MnDOT)

Jeff Perkins, PE (Asst District Engineer/Operations Manager – MnDOT District 4)

Mike Ginnaty, PE (Director of Project Management & Technical Support – MnDOT)

Wayne Sandberg, PE (Deputy Director/County Engineer – Washington County)

Charleen Zimmer, AICP (President – Zan Associates)





Integrating Construction, Operations and Maintenance into Transportation Planning and Design

Jeff Perkins, District 4 ADE
Maintenance Operations
March 28, 2012

Your Destination...Our Priority



CSS – A Necessary Part of Daily Business

The theme of this presentation is that time invested by construction and maintenance staff early in the design process can lead to major time savings and benefits down the road.



Where We Were in the 1990s

- ❑ District design, construction and maintenance staffs worked independently in their own functional silos
- ❑ Daily struggle with a lack of communication between sections
- ❑ Problem solving was done in a vacuum
- ❑ Decisions were not communicated with other sections
- ❑ Held an annual design/construction meeting that more or less was a “finger pointing session”



DESIGN/CONSTRUCTION MEETING

DECEMBER 2, 1998

1. When listing Pay Items that might not be used (Fog Seal) make sure it is listed in the Spec. Provisions (1903) or the Contractor may ask for reimbursement or a change in price.

No response needed.

2. Review Plan Quantities.

Plan to have designers get together with inspectors (plan by plan) to decide which should be (P) quantities. Agg. shouldering not working.

3. Review Item calculations which are constantly overrunning.

Increase quantities for unknown conditions.

4. One of our projects had a 350% overrun on Class 1 Shouldering. I don't think it is always possible to place the shouldering as shown in the Typical.

Covered in No's. 2 & 3.

5. On projects of numerous turn lane construction locations would it be conducive to tabulate all Pay Quantities involved at each location?

Design can comply – tab will be set up to help serve as a source for quantity breakdown.

6. On extended late paving projects where final striping cannot be completed or even started due to weather, should it be said “up front” that the interim (over winter striping) shall be paid for by the Contractor?

Project enforcement – issue should be addressed before permission is given for late paving.

7. How are we going to handle tight blading and what will it be called?

New specs will allow us to not use 2350. Will call for min. bit. spec. and Spec. Prov. should read (or called for by Engineer). Tight blading should essentially be a sand mix. Most can be covered in Spec. Provisions.

8. Ditch cleanout: Provide hours for backhoe, small track dozer and 10 yd. dump truck for hauling spoils away. One of our projects only provided for a tractor mounted backhoe loader.

Small dozer should be added but a footnote should be added that the disposal shall be considered incidental.



In the early 2000s we began to see the light

- ☒ Started with baby steps and progressed slowly from there
- ☒ District 4 started to do a better job of cross-training our employees
- ☒ Design and construction engineers started working much more closely together
- ☒ Items for the annual design/construction meeting agenda decreased from several pages to only a few items
- ☒ Construction engineers wrote all special provisions with help from design engineers



Significant improvements by the mid-2000s

- ☒ Design and construction staff working together on project designs
- ☒ Construction staff helping identify right of way needs
- ☒ Environmental coordinator helping project engineers write environmental specifications
- ☒ Construction engineers helping coordinate utilities and attending public meetings several years before lettings
- ☒ Design staff helping the construction staff with design changes in the field
- ☒ No longer holding annual design/construction meeting because issues are communicated effectively when they occur



Highway 10 Project in Detroit Lakes

A Case Study of Success



Detroit Lakes Highway 10 Project Layout



Three highways and two railroads are located within the project limits

- ☐ US 10, US 59 and MN 34
- ☐ Burlington Northern Santa Fe Railroad and Canadian Pacific Railroad



Original scope of project

The preliminary design called for a four-year construction project that would accomplish the following:

- ❑ Realign Hwy 10 through the city of Detroit Lakes
- ❑ Realign approximately 3/4 mile of the BNSF line
- ❑ Reduce access points on Hwy 10 from 70 to seven
- ❑ Provide for a second grade separated railroad crossing and eliminate two at grade crossings
- ❑ Separate local traffic from through traffic with the addition of a frontage road
- ❑ Provide for treatment systems to improve storm water quality entering Big Detroit Lake and the Pelican River



Initial concerns of construction staff

Construction staff started working daily with MnDOT designers and the design consultant three years before letting. Initial concerns included:

- ❑ Environmentally sensitive project
 - Big Detroit Lake and Pelican River
 - Inadequate right of way for water treatment or erosion control
 - Purchased additional right of way
- ❑ Construction limits did not provide adequate room for grading work
 - Purchased additional right of way
- ❑ Resort community/tourist-focused economy
 - Business community could not endure four-year project
 - Needed to find ways to shorten project duration



Railroad and utility coordination

- ☒ For three years leading up to the project letting, MnDOT construction staff actively participated in all railroad, utility and public meetings
- ☒ One year before the project letting, MnDOT construction staff took the lead in all railroad, utility and public meetings



Contract time and special provisions

- ☒ With one year to go before the project letting, MnDOT construction staff started to assume many of the project management responsibilities
- ☒ Commitments from the city of Detroit Lakes, local businesses, Chamber of Commerce, etc., were coordinated by the construction staff to ensure they were properly addressed in the special provisions
- ☒ Despite having a design consultant working on the project for over six years, the construction engineers wrote all of the special provisions, including time and traffic for the project



Identified “pre-projects”

- ☒ Identified several areas of concern for potential delays (involved large group in discussions)
- ☒ Let and constructed two projects prior to the main project - BNSF railroad grade/bridge and Hwy 34/59 intersection
 - Allowed utilities to relocate in stages
 - Provided major time savings to the main project
 - Pre-project could be seen but impacts minimal



BNSF railroad grade and bridge

- ❑ Let and constructed in 2006 – one year before the project's scheduled start

- ❑ Used entire season to complete



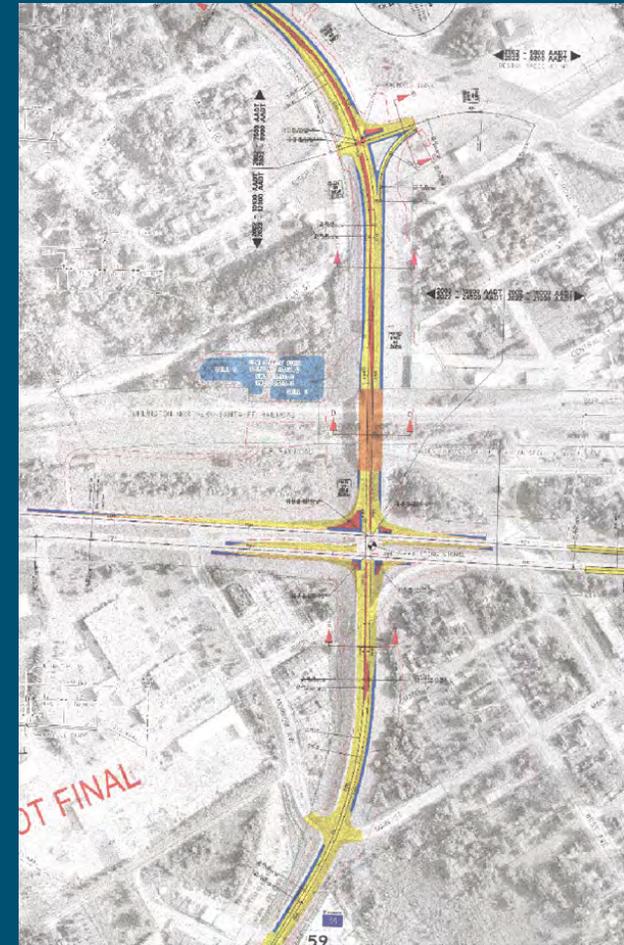
- ❑ If constructed in 2007 as originally planned, BNSF could not have placed their new tracks until 2008

- ❑ Project had almost no impact on traffic



Hwy 34/59 intersection

- ❑ Let and constructed in 2006 - one year ahead of schedule
- ❑ Necessary to handle increased traffic flow resulting from the three-month closure of two railroad crossings while BNSF placed their new tracks in 2007
- ❑ If constructed in 2007 as originally planned, BNSF could not have placed their new tracks until 2008
- ❑ Project had almost no impact on traffic



Innovative contract methods and new technologies

- ❏ A + B + C Project
 - 4/16/2007 – 9/30/2008
 - No incentive for early completion
- ❏ Detour Rental Method
- ❏ Locked Incentive Date
- ❏ Critical Path Management scheduling
- ❏ Intelligent Compaction and Light Weight Deflectometer
- ❏ Machine Control
- ❏ Business Liaison
- ❏ Intelligent Work Zone System
- ❏ TRACS (Transportation Automated Control System)
- ❏ Automated Railroad Monitoring System



A + B Bidding Method (+ C Detour Rental)

Determination of the successful bidder based on:

- ☒ Bid price (A) actual contract amount
- ☒ Proposed contract time (B)
[calendar days X road user cost (\$5,000/day)]
- ☒ Amount of detour time bid by contractor (C)
- ☒ Bidding advantage to contractors who are able to complete the work faster and remove detours earlier
- ☒ Maximum incentive cap for detours \$100,000



Locked Incentive Date (LID) – “No excuse bonus”

- ☒ Contractor eligible for \$300,000 incentive payment by completing bridge and intersection work prior to Dec. 1, 2007
- ☒ Incentive payment based on savings by reduced railroad flagging costs (estimated yearly cost of \$240,000)
- ☒ Contractor must waive all claims associated with work in the area



Highway 59 bridge



-  Demolished old bridge and built new bridge over two railroads – CP and BNSF
-  Contractor received \$300,000 for meeting the Locked Incentive Date



Detour rental method (1301)

- ❑ Based on lane rental specs
- ❑ “C” portion of A+B+C
- ❑ 13 total detours on the project – opted not to include all of them to avoid confusion
- ❑ Detour rental specifications cover four major detours
- ❑ Rental day assessments
 - \$5,000/day for Roosevelt Avenue underpass
 - \$2,500/day for Washington Avenue (N and S) and Kris Street
- ❑ Contractors bid the number of days to complete the work included for each detour – specs listed the work in detail
- ❑ MnDOT set maximum number of days allowed for each detour
- ❑ Daily rate doubled after maximum allowed days was exceeded
- ❑ Specs stated that additional equipment/crews/shifts may be necessary



Critical Path Management (CPM) Schedule

- ❑ CPM schedule is required for this project
- ❑ Primavera Project Planner (P3 v3.1)
- ❑ Resource loading of the bid items will be required for baseline schedule acceptance
- ❑ Only 30 percent of the project can be critical and only 50 percent can be near critical activities
- ❑ Acceptance of a preliminary schedule is a condition of (Notice to Proceed) NTP1, with baseline acceptance a condition of NTP2
- ❑ NTP2 is required within 20 days of NTP1



Requests for schedule change

- ❑ Plan and proposal indicate the planned method and sequence of operations for staging traffic control and construction operations
- ❑ 30-day notification for alternate staging schemes
- ❑ Revise the CPM to show impact to project
- ❑ Temporary drainage and erosion control plan
- ❑ Written traffic control plan
- ❑ Communications plan on how to inform the public
- ❑ Revise plan sheets



Waters of the State – Big Detroit Lake, Pelican River

☒ 1803 Specifications

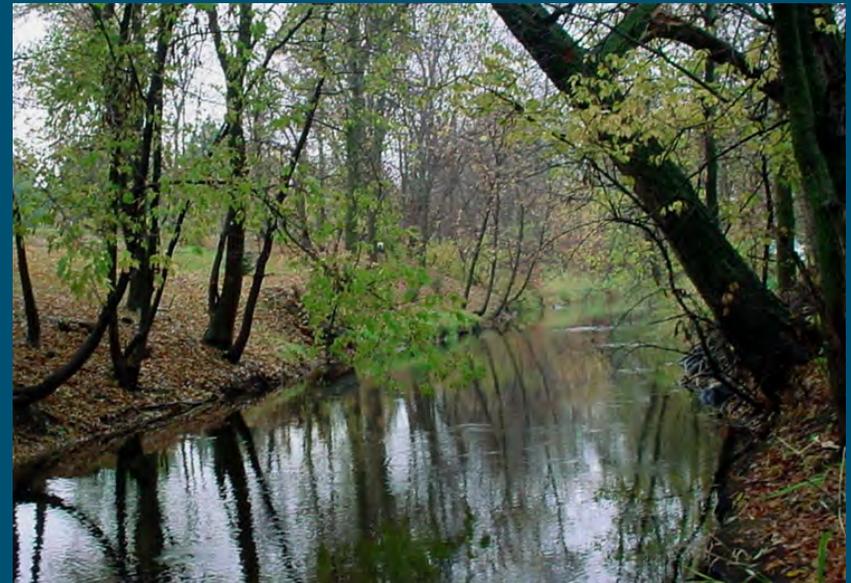
☒ Special Emphasis Zone (SEZ)

- Any work within 200 ft of Big Detroit Lake, Pelican River, or any structure discharging into Waters of the State
- Special erosion control measures

☒ Pelican River restricted time zone

- April 1–July 1

☒ Site plan requirement area



Big Detroit Lake

- ❏ Site plan requirement area
- ❏ Special emphasis zone (SEZ)
- ❏ Construction of temporary sediment ponds
- ❏ Stockpiles within SEZ must be treated
- ❏ Dewatering, if needed, pumped to ponds
- ❏ Floating silt curtain and lighted buoys
 - Installed in spring of 2007 and 2008
 - Removed in fall of 2007 and 2008



Business Liaison

- ❑ Specification based on “Best Practices” identified on design build projects requiring contractor to provide a “public relations contact” for the project
- ❑ Intent is to ensure the contractor provides an increased level of communication and coordination with the business community



Railroad track monitoring system

☒ Mn/DOT will be installing and providing all data

☒ BNSF acceptable track movement:

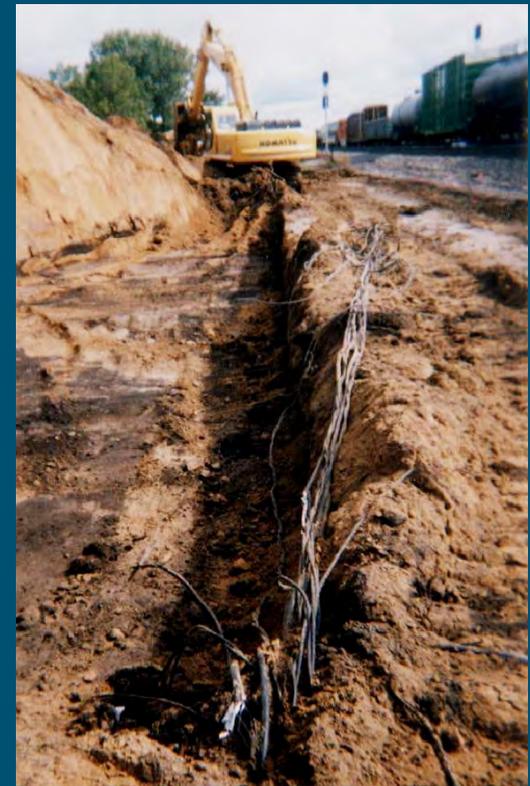
- $\frac{3}{4}$ -inch vertical movement per 39 longitudinal feet of track
- $\frac{1}{4}$ - to $\frac{1}{2}$ -inch vertical differential between rails
- $\frac{1}{4}$ - to $\frac{1}{2}$ -inch lateral displacement per 39 longitudinal feet of track

☒ Contractor may be required to cease work if settlement is greater than railroad tolerance



Utilities (1507)

- ☒ Becker County Road 54 new alignment
 - Contractor cut 15-foot path for utilities
- ☒ 8th Street/Roosevelt Avenue intersection
 - Contractor coordinated with Minnesota Energy
- ☒ Jackson Avenue new alignment
 - Contractor coordinated with Qwest
- ☒ Randolph Road and Peter Street
 - Contractor coordinated with Ottertail Power and Qwest



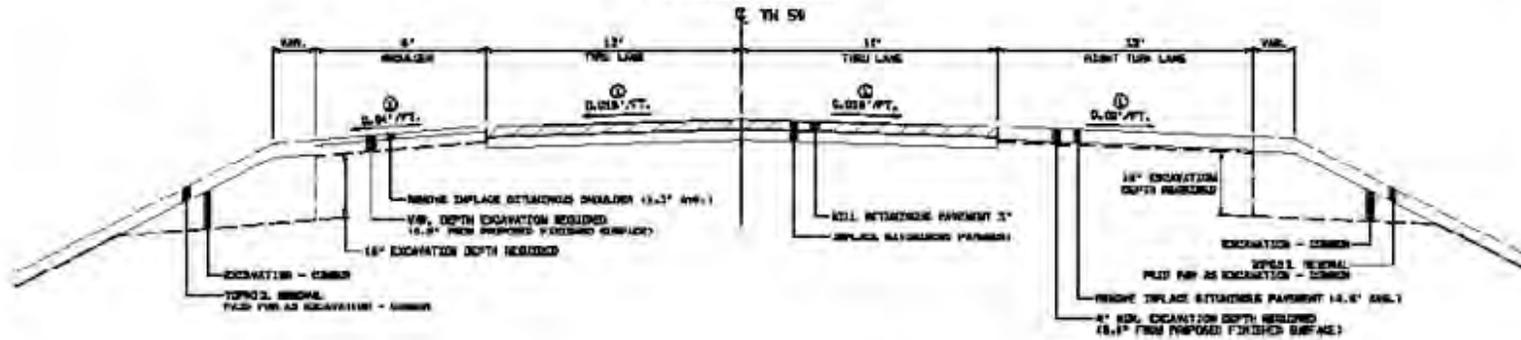
Intelligent work zone system

- ❑ Emphasis on snow and ice safety
- ❑ Transmitter in plow truck activates message board when the vehicle enters the area
- ❑ Message board returns to blank screen when plow truck leaves the area



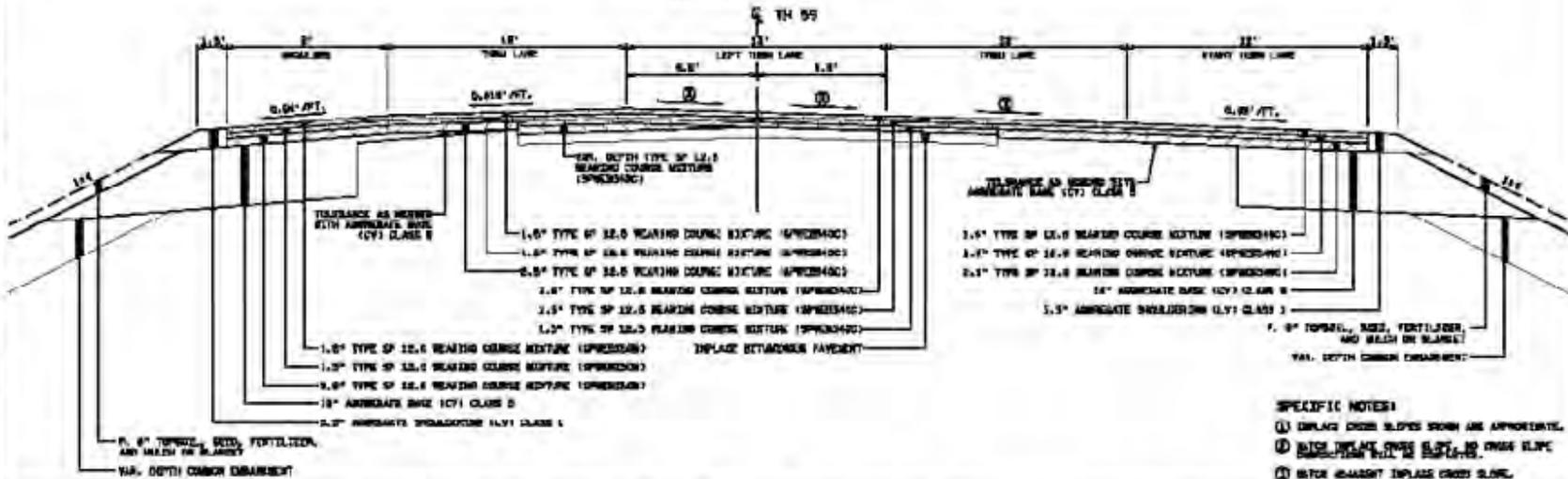
INPLACE TYPICAL SECTION TH 59
INTERSECTION WITH TH 34

STA. 149800 TO STA. 149900



PROPOSED TYPICAL SECTION TH 59
INTERSECTION WITH TH 34

STA. 149200 TO STA. 149500



- SPECIFIC NOTES**
- ① EXISTING SLOPE SHOWN ARE APPROXIMATE.
 - ② EXISTING EXISTING SLOPE SHOWN ARE APPROXIMATE.
 - ③ EXISTING EXISTING SLOPE SHOWN ARE APPROXIMATE.

DATE: 10/15/2014 TIME: 10:00 AM
PROJECT: TH 59 INTERSECTION WITH TH 34
DRAWN BY: SJK
CHECKED BY: SJK

DRAWN BY: SJK	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY CLOSE SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	 THOMAS & DONOHUE ENGINEERS, ARCHITECTS & PLANNERS 4810 AVENUE 12, SUITE 100 LITTLE ROCK, AR 72616	 MINNESOTA DEPARTMENT OF TRANSPORTATION TH 59 MILL AND OVERLAY	TYPICAL SECTIONS INTERSECTION WITH TH 34	STATE PROJ. NO. 0518-25 (TH 59) Sheet No. 18 of 89 Sheets
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Project agreements and follow-up maintenance agreements

Section B. Maintenance Responsibilities

Routine maintenance consists of the following duties, which must be performed in a timely and efficient manner:

- The City will maintain the roadside vegetation and landscaping in a neat and orderly fashion by mowing, trimming, and providing for noxious weed control in accordance with Minnesota Statutes Section 160.23. The City will furnish all labor, materials, tools, equipment and any other necessary items for this task.
- The City will notify the State if the Burlington Northern Santa Fe Railroad bridge underpass Outfall piping needs to be steamed. The City shall open up the system and the State shall assist by steaming as necessary.



Benefits of communication early in the design process

- ☒ Involve your district's maintenance crews early in the project design process
 - Their input is invaluable - they work in the field every day and may be aware of issues that are not immediately obvious to the pre-design engineer
 - Taking time at the beginning of the process to address these issues saves everyone involved much more time and trouble to adjust a design that has already been approved or let
 - A chance for maintenance crews learn about the project and design process, including what limitations the engineers have to work with, before it takes place



Dramatic improvements by late 2000s

- ❑ Pre-design project managers manage project from scoping through 30 percent design
- ❑ Project manager/project engineer manage project from 30 percent design through final construction
- ❑ Maintenance supervisor or superintendent attend all scoping meetings
- ❑ Maintenance superintendent attends most program review meetings
- ❑ Project engineer asked to meet with maintenance truck station personnel to explain what is being done, what is not being done and why certain things are not being done on a project (closing the communication loop)
- ❑ Project engineer and maintenance supervisor meet to review punch lists on projects



CSS – part of our daily routine

- ❑ District 4 has reached the point where CSS principles are part of our daily routine
- ❑ As with anything new, we have successes and challenges – it is a continual process to effectively integrate CSS
- ❑ Our staff now approach projects in a collaborative manner, working together to reach a common goal
- ❑ Communication between sections has improved significantly as we have moved further down the CSS path



Benefits of CSS

- ❑ Getting people to understand how using CSS will positively impact them is key - take the time to help them learn
- ❑ Time invested early in the process will usually result in exponential time savings down the road
- ❑ Everyone wins - the public, business communities, public partners, other agencies, internal staff, the environment, etc.
- ❑ Communicating early and often helps build trust and helps us get buy-in from stakeholders



Use CSS

- ❑ District 4 has not had to move a project to the next fiscal year for over four years. A major reason for this is because we are determining project risks during the scoping phase, assigning probability to those risks and then managing those risks throughout the project.
- ❑ This is a group effort. The process includes representatives from every functional area working as a team to manage these projects together.



Use CSS

Time invested today results in benefits tomorrow





Integrating Construction, Operations and Maintenance into Transportation Planning and Design

March 28, 2012

Mike Ginnaty

Director Project Scope and Cost Management

Your Destination...Our Priority





What is MnDOT doing with CSS?





MnDOT Initiatives:

- Scoping
- Cost Estimating/Cost Management
- Risk Assessment/Management
- Hear Every Voice
- Context Sensitive Solutions
- Flexibility in Design (Practical Design)
- Performance Based Design
- Business Impact Study
- Conflict Prediction Model





Project Management

- **More rigorous**
- **More consistent**
- **Follow Project Management Institute**
- **Four project phases (initiation, planning execution and closure)**





Scoping Process Initiative

- **Vision for New Scoping Process**
 - Early
 - Comprehensive
 - Documented
 - Includes a Scoping Change Process
- **Definition of Scoping: What's In and What's Out of a Project**





MnDOT is working to achieve:

Earlier and more comprehensive front end project planning so we are able to deliver the right project, on-time and on-budget.





What is “right project”?

- Typically defined as meeting our programs goals and objectives.
- Need to include all stakeholders (both internal and external)





Stakeholders

- Internal
 - Functional areas (Construction, Design, R/W, Hydraulics, etc)
 - Other modes (Peds, bikes, aeronautics, etc
 - Specialty areas (Historical, contaminated soils)





Stakeholders

- External
 - Other agencies (DNR, COE, Watersheds, Dept of Public Safety)
 - Municipalities and counties
 - Businesses
 - Public
 - Legislators





CSS Scoping Challenges

- Focusing on earlier coordination, especially with stakeholders
- Managing stakeholder expectations
- Understanding risk and how to mitigate
- Shifting resources to earlier in Project Development
- The end of scoping is the end of discovery





Shifting resources to earlier in Project Development

- I am too busy delivery our projects
- Look at the problems we need to fix can be resolved by early coordination





What are the benefits?

- Do it right the first time
- More efficient use of resources
- Stakeholder buy-in

- An ounce of prevention is worth a pound of cure
- Time invested today results in benefits tomorrow.





Time invested today results in benefits tomorrow.

Mike Ginnaty

Director, Project Management and Technical Support

Mike.ginnaty@state.mn.us

218-846-3604

Your Destination... Our Priority





Context Sensitive Design

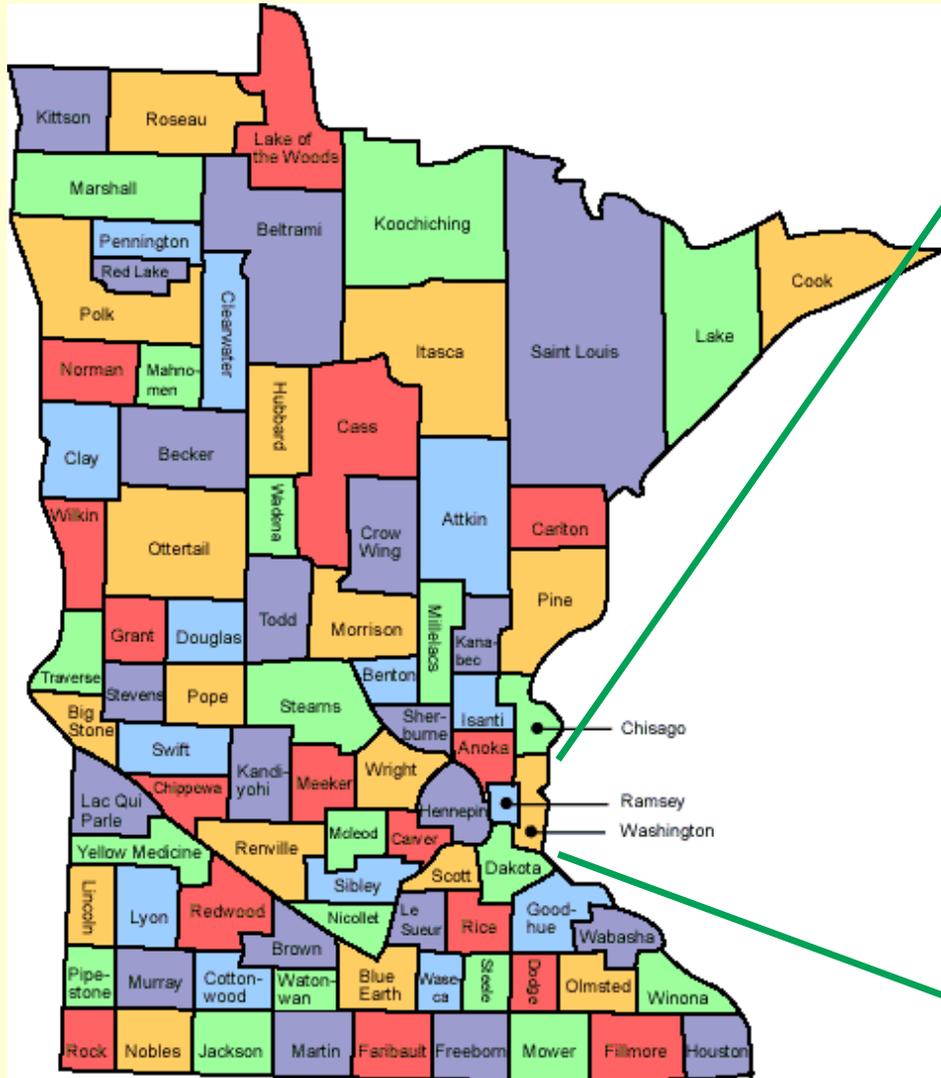
Local Agencies

Wayne Sandberg, P.E.

Deputy Public Works Director

County Engineer

Washington County



Who are we?

- 300 miles of county highway
- Population (2010) – 238,136
 - 5th most populous county in state
- Major Communities
 - Woodbury, Cottage Grove, Oakdale, Stillwater, Hugo, Forest Lake
- **Expectations are HIGH**
 - **Residents**
 - **Politicians**

We are not perfect



How we approach design

- What you build is important
- How you get there is just as important.
- In every case – think – how would you want to be included?
- You will find benefits to expanding your team

Thinking
Beyond the
Pavement

How we approach design

- Design starts with a problem or opportunity.
 - We solicit lots of input on defining the problem(s) or opportunities.
 - Answer the question – is this something we must solve?
- Set goals
 - In the process of solving the problem – what goals should we strive to meet?

How we approach design

- Develop alternative solutions to the problem
 - Each alternative is measured against the goals.
 - Promote creative solutions
 - Solicit input on all alternatives
- Narrow to preferred alternative
 - Require elected officials to endorse

How we approach design

- Improve preferred alternative
 - Possibly incorporate good ideas from discarded alternatives
 - Public input – are we meeting goals and expectations?
- Finalize design
- Construction Staging / Constructability
 - Elected officials approve
 - Bid
 - Construct

Local Agency Differences

- Different than State Agency
 - Politics are more involved
 - Commissioner / Councilmember knows our home phone numbers
 - The next election is right around the corner
 - My job is to:
 - **Deliver the project**
 - Give them credit for what works well
 - Take any negative heat when it gets tough
 - In the end – give them a ribbon cutting they can be proud to attend.





Construction

- Benefits
 - Reduce Overdesign
 - Improve constructability
 - Understand what will affect bid pricing
 - Increase creative solutions



Construction

- How does it happen?
 - Incorporate your construction team into the design process.
 - Include your survey team
 - Initial “problem” development
 - Plan review
 - Specification
 - Constructability (staging)
 - Incentives
 - Attend open houses / public meetings

Construction Case Study

- American Legion – 4th of July Celebration
- Broadway Avenue Project – Forest Lake, MN
 - \$17 Million – interchange & 4-lane reconstruct
 - Part of \$41 Million areawide improvements
- 2-Year project to construct

Construction Case Study

- Forest Lake is the “4th of July Capital of the Upper Midwest”
- Huge event
 - Parade
 - Carnival
 - Fireworks



- Parade Route – you guessed it – **On Broadway Avenue**
- Event Sponsor – American Legion

Construction Case Study

- Original Design
 - Reroute parade
 - Relocate carnival
- American Legion leadership position
 - It doesn't matter what you need to build
 - You **WILL NOT** impact this event. Period.
 - BTW – you know we are Veterans right?
- This posed a big problem for us...

Construction Case Study

- Construction Team to the rescue!
 - Evaluated the staging “breaks” in the project.
 - Evaluated utility work needed.
 - Figure out that in Year 1 – we could stay out of this area all together.
 - Added temporary fencing to a bridge for viewing
 - In Year 2 – we could stage it to provide 1 week of no construction
 - Added in spec the contractor had to take time to clean up the area to our approval
 - Use project incentives

Construction Case Study

- Volunteered for Pie Throwing Contest to raise money for Fireworks
 - As the bad guy who almost ruined the parade
- Commissioner Happy
- Veterans Happy
- **Project delivered.**





Maintenance

- Benefits
 - Your agency “eyes and ears.”
 - They will know about problems/issues you never knew existed
 - Will bring up practical issues sometimes forgotten
 - Coordinate construction with planned maintenance activities
- Since they are going to have to maintain it – get them involved in the design

Maintenance

- How does it happen?
 - Incorporate up front
 - During Problem identification phase
 - Not every problem can be solved
 - But making educated choices is preferred
 - Ride along with snow plow operator in his/
her plow vehicle
 - Take notes
 - Walk the area with maintenance

Maintenance

- How does it happen cont...
 - Allow maintenance staff at least 1 year lead over everyone else
 - Give them a chance to address any issues necessary prior to construction
 - Check in with them during design
 - Plan review at 30% plans
 - Leave in lunchroom with pen



Operations

- At local level
 - Snow Plowing
 - Traffic Control
 - Signals, striping, roundabouts, signs
 - Utilities
- Benefits
 - When you are done...it better work!

Operations

- How does it happen?
 - Snow Plow
 - Ride along
 - Traffic
 - A traffic engineer or operations staff must be a part of the design team.

Operations

- Benefits
 - Major technical resource during project development
 - Ensure design accomodates safety features
 - Adequate lanes for signal control
 - Ped xing locations
 - Simulations – does the design work?

Operations

- Utilities
 - Early coordination is key
 - Annual utility coordination meeting
 - Develop relationship with your key contacts
 - Plan for relocation 1 year prior to construction
 - If problems arise – negotiate/talk
 - Be prepared to pay



Politicians / Administrators

- Will value different things
- Will define success differently
- Case Study
 - Administrator wanted Trees in clear zone:
 - **“ For too long, the County has favored safety over aesthetics.”**
 - We were able to find a species of tree that doesn't exceed 4 inch thick – minimized hazard.



Special Interests

- Don't forget about them!
 - Municipal – Police, Fire, Ambulance, School, Post Office, etc
 - Fitness – cyclists, rollerblade, walk, run, etc
 - Snowmobiles and ATV
 - Daycare
 - Transit
 - Environmentalists
 - CSAH 19 Example – if time

Conclusion

- Evaluate your design process
 - Does it provide opportunity for cross functional input?
- Focus on solving problems
- The final outcome will be better
- Remember that
 - Your job is to *deliver projects*
 - What you build is important
 - **How you get there is just as important.**

Questions / Discussion

- Wayne Sandberg
 - County Engineer
 - Deputy Public Works Director
- Washington County Public Works
 - 651-430-4339
 - wayne.sandberg@co.washington.mn.us
- *www.co.washington.mn.us*



Integrating Construction, Operation and Maintenance into Design

Charleen Zimmer, AICP, Zan Associates

March 28, 2012



Learning from Design-Build

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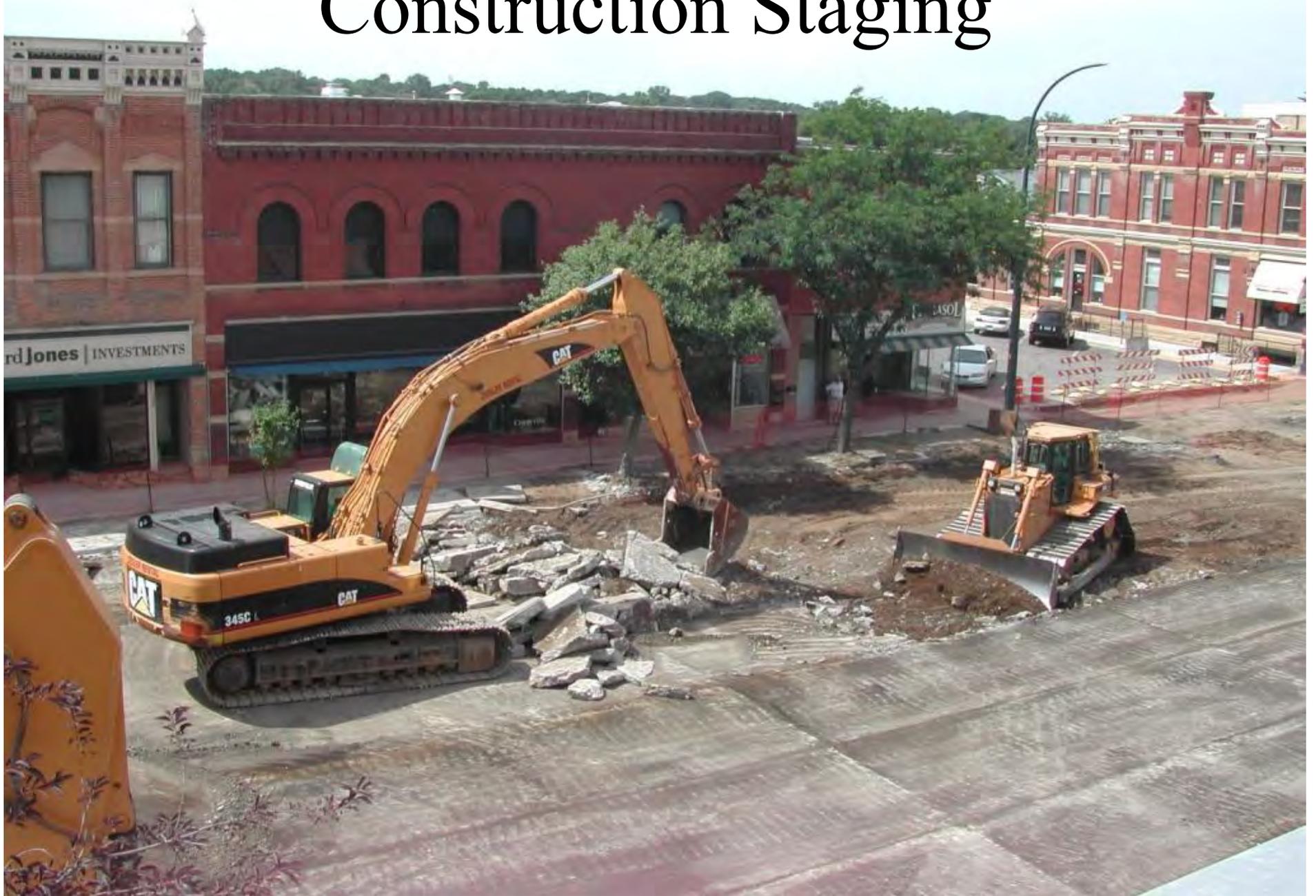
Lessons from Design-Build

- First, what to build
- Then, HOW to build
- Then, design details



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Construction Staging

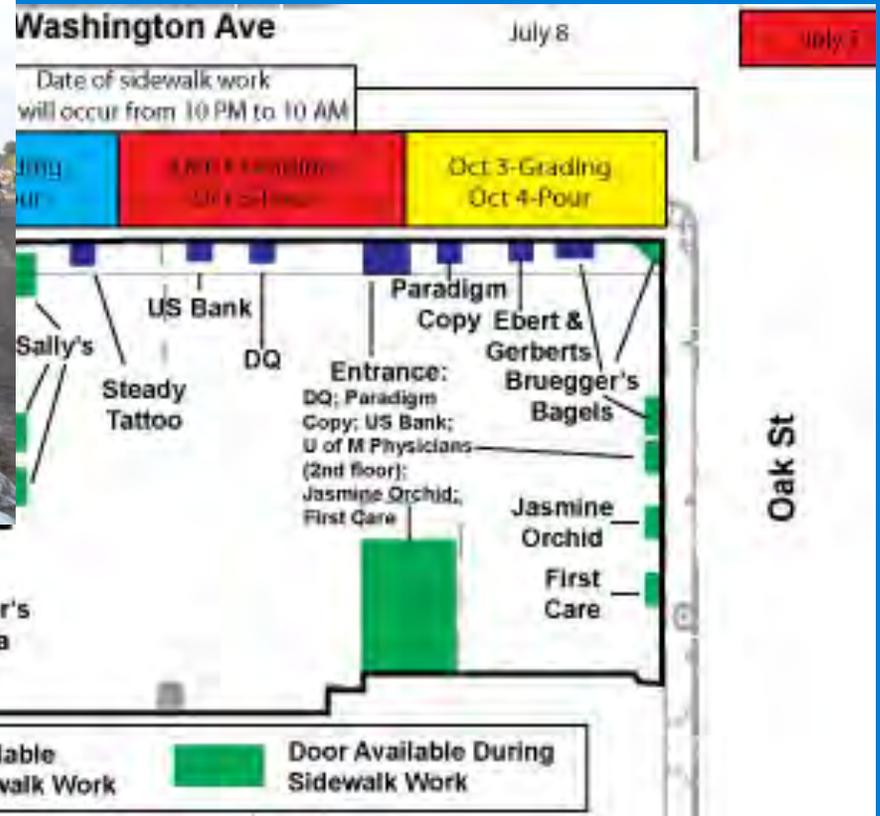


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Nighttime or Winter Work

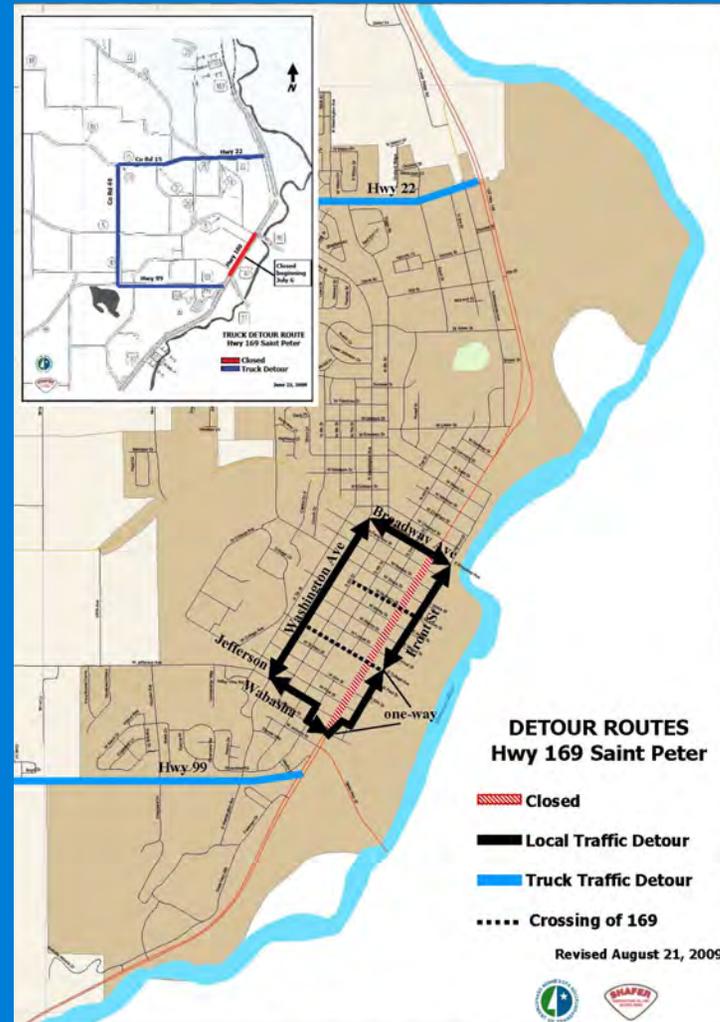


Staging Sidewalk Construction

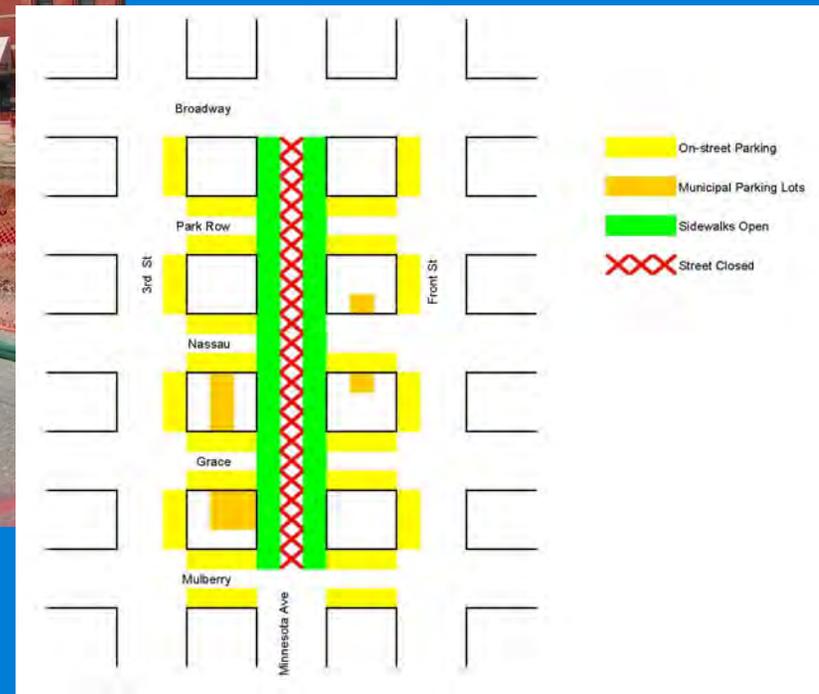


Maintenance of Traffic

- Detours
- Hours/days of operation
- Cross-street/access closures
- Haul routes
- On-street parking



Auto Access to Businesses/Parking

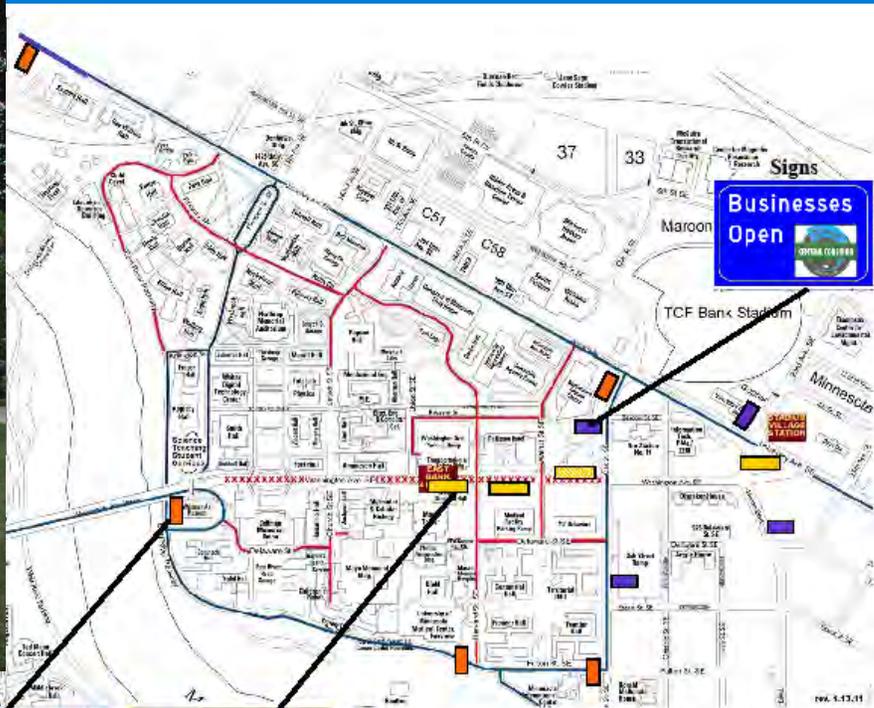


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Access Across Work Zone



Business Signing



Requires University Approval



Signs on Detours



Banners

2011 EAST BANK BUSINESS SIGNING PLAN

May 12, 2011

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What's Underground?



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Think Beyond the Plan Sheet



Grading



Don't Forget ADA

- Hydrant, push button and possibly the sign make this sidewalk non-compliant to ADA guidelines



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Or Bicycle Use



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Or Water

- Stormwater
- Erosion control
- Dewatering
- Water service



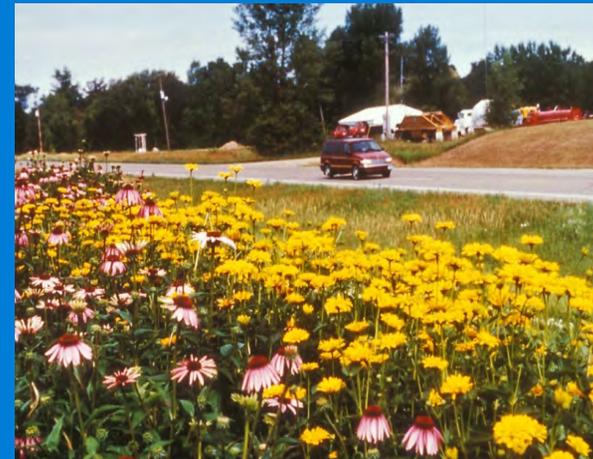
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Anticipate/ Respond to Issues



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Tree Removal and Plantings



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Vibration and Noise



Economic Impacts



Other Construction Impacts

- Work zone fencing
- Visibility
- Garbage Collection
- Mail delivery
- Construction debris
- Storage/delivery of equipment/materials



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Final Thoughts

- Think about Staging
- Think Beyond the Plan Sheet
- Know What's Underground
- Anticipate Issues
- Don't Over Promise (things will happen!)



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Questions/Comments?



Webinar: Integrating Construction, Operations, and Maintenance into Transportation Planning and Design – Early Communications Translating to Project Success

Questions and Panel Discussion

To submit a question or comment via email, click on the “Ask a Question” bubble icon in the upper left corner of your screen.

Your Destination...Our Priority

