



**PAC Meeting 4**  
Zavoral Mine & Reclamation  
Project EIS

August 23, 2011

### Agenda

- Approval of Minutes
- Project Update
- Air Quality
- Visual Assessment
- Reclamation & Forestry Management Plan Improvements
- Property Value
- Updated Traffic
- Final PAC Meeting
- 5:45 pm Public Questions



**Project Update**

### Next Steps

- Final PAC Meeting – Review of Preliminary draft EIS
  - November 9<sup>th</sup> – tentative date
  - Goal to get draft EIS to PAC at least a week prior to meeting
- Revised Draft EIS to City Council – December

### Preliminary Draft EIS Review

- Request PAC input that would improve draft EIS
  - Scope of EIS-does it meet SDD requirements?
  - Help improve clarity of EIS
  - Additional pertinent information
  - Additional ideas for mitigation measures
- Providing comments on preliminary draft EIS does not limit PAC members' ability to provide comments on draft EIS as part of formal public review process

**PAC Protocol**

### PAC Protocol

- Meetings are for PAC to receive information, ask questions, & discuss issues
- Questions from public allowed at end of meeting; comment cards are available
- If meeting extends beyond scheduled ending time, will continue only if majority of PAC members can remain

### PAC Protocol

- All members need to have in front of them any information a PAC member refers to during a meeting. (If you have something you intend to refer to, please bring copies for each member)
- Anne Hurlburt is the point of contact for information sharing between meetings

### PAC Protocol

- PAC meeting notes comprise written documentation of PAC's advisory role
- PAC members are likely to comment on EIS when published as individuals/or as agencies



## Acceptance of Minutes

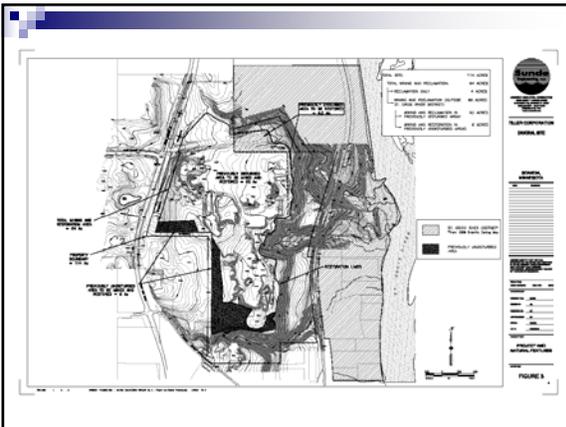
Acceptance of July 2010 Meeting Minutes

### Technical Memoranda

- PAC interest in information for key issues prior to preliminary draft EIS
- Prepared draft TMs for Air, Visual, Property Value & Updated Traffic
- TMs identify impacts & potential mitigation
- Final TMs will be appendices to EIS
- Request PAC members incorporate any input from constituents with their individual comments on TMs for submittal to City

### Project Overview

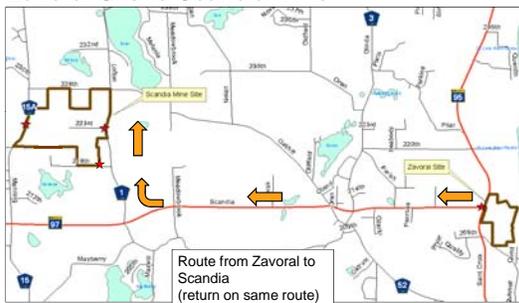
- Tiller proposes to operate a sand & gravel mine on site of a dormant, unreclaimed mine site
- 114-acre site located along St. Croix Trail North (TH 95) near TH 97 intersection
- Propose to mine & reclaim 64 acres including 8-acre area not been previously mined



### Project Overview

- Propose to restore 4 acres of previously mined area within St. Croix National Scenic Riverway & Scenic Easement Area
- Mined aggregate material would primarily be hauled to Tiller's Scandia Mine near Manning Avenue & 225th Street for use in material produced there
- No processing at the Zavoral Site

### Proposed Add-Rock Haul Route Zavoral Site to Scandia Mine



### Zavoral Site Activities

- Clearing & grubbing vegetation
- Removing & stockpiling for reclamation
- Excavating raw aggregate materials
- Using water from existing Site well for dust suppression
- Storing fuel & related materials

### Zavoral Site Activities

- Reclaiming Site - grading, placing topsoil or other organic material, & seeding
- Mining operations typically on a seasonal basis from April through mid-November- but could occur year-around

### Alternatives

- Alternative 1 – Tiller's Preferred
  - 5 to 10 year mining & reclamation
  - 6 to 12 weeks mining operations each year
- Alternative 2 – No-Build Alternative
- Alternative 3 – Reduced Timeframe
  - Up to 5 years mining & reclamation
  - 12 to 18 weeks mining operations each year



## Goals

- Potential to Emit (PTE) calculations
- Ambient air quality analysis using computer model
- Deposition analysis for land & St. Croix River
- Potential for health effects from crystalline silica

## Air Permitting Requirements

- Tiller would have to apply for & acquire an air permit for operation from MPCA
- "General Permit" for non-metallic mining would likely be appropriate type of permit

## Goal 1 – PTE Calculations

- PTE calculations completed for
  - Particulate matter (PM)
  - Inhalable particulate matter (PM<sub>10</sub>)
  - Fine particulate matter (PM<sub>2.5</sub>)
- Worst case emissions calculated based on maximum mining emission rates for Alternatives 1 & 3

## Goal 1 – PTE Calculations

- No mitigation measures were included in calculations
- PTE calculations for Alternatives 1 & 3 are same since PTE calculations are for daily & annual time periods

## Goal 1 – Findings

- Worst case emission calculations, unmitigated PTE
  - PM = 223,183 lbs/year
  - PM<sub>10</sub> = 75,269 lb/year
  - PM<sub>2.5</sub> = 7,462 lb/year

### Goal 2 - Ambient Air Quality Analyses

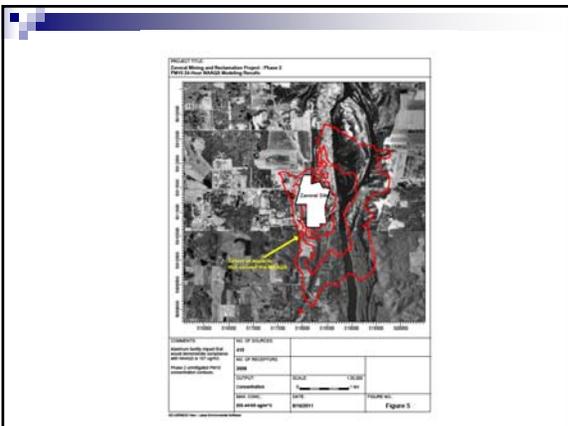
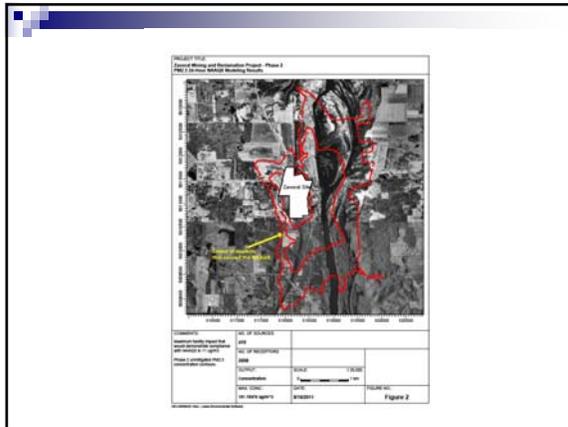
- PTE calculations used in ambient air quality analyses
- Ambient air quality analyses based on annual & daily emissions
  - One “worst case” set of PTE calculations completed for Alternatives 1 & 3
  - Variable is length of time over which impacts could occur

### Goal 2 - Ambient Air Quality Analyses

- Modeling analysis used historic actual meteorological data - represents highest concentration likely to occur
- Model calculates maximum concentration
  - PM<sub>10</sub> that could occur no more than 6 days in any year
  - PM<sub>2.5</sub> that could occur no more than 1 day in any year
- Highest modeled concentrations along property line north of Site

### Goal 2 - Findings

- Uncontrolled emissions would exceed NAAQS
- Exceedance area is highly irregular in shape
- Approximate distance to NAAQS boundary
  - North = 1.2 miles
  - East = 0.9 miles
  - South = 1.4 miles
  - West = 0.5 miles



### Goal 2 - Findings

- Exceedance of NAAQS is not allowed under Minnesota air quality regulations
- Proposed Project could likely be brought into compliance by regularly applying mitigation measures

### Goal 2 - Findings

- Crystalline silica content of aggregate is not known
- Direct comparison of PM<sub>10</sub> crystalline silica concentration to crystalline silica exposure limits not possible

### Findings

- However, if all PM<sub>10</sub> were crystalline silica
  - Maximum PM10 concentration is below Occupational Health, but above American Conference of Industrial Hygienists recommendation
  - Maximum PM10 concentration is above California Reference Exposure Levels

### Goal 3 – Deposition Analysis

- Ambient Air Quality Analysis results were used in deposition analysis
- Modeled PM deposition to land, vegetation, & St. Croix River
- Modeled receptors at Zavoral property boundary & along St. Croix River

### Goal 3 - Deposition Analysis

- Concentration of PM decreases with distance
- Maximum deposition value used for all calculations
- Maximum PM deposition into St. Croix River determined by modeling PM deposited into river 2,200 meters upstream & downstream from Site under "worst case" emission & deposition conditions

### Goal 3 - Findings

- Land and Vegetation
  - Predicted concentrations are above NAAQS (in absence of mitigation techniques)
  - Thus, it may be assumed that concentrations may be high enough to adversely impact local vegetation
- St Croix River
  - Fugitive dust is not likely to adversely affect water quality in the St. Croix River

### Mitigation

- Combination of techniques has potential to reduce impacts to level that would meet NAAQS, MAAQS, & reduce impacts
  - Tiller develop mitigation plan for review & assessment to verify if it would reduce PM emission to acceptable levels
  - Plan could be used as part of any future Operating Permit along with appropriate monitoring program

### Potential Mitigation Measures

- Application of water to unpaved roads to maintain high moisture content
- Routine sweeping of paved roads to reduce silt loading on pavement
- Application of dust control chemicals to reduce fugitive dust emissions from unpaved roads
- Reduction in the daily mining rate & number of trucks
- Application of water to excavation area to maintain high moisture content of excavated material

### Potential Mitigation Measures

- Installation & maintenance of wheel wash system at transition from unpaved to paved roads
- Covering truck beds with tarps to reduce wind-blown dust
- Application of dust control chemicals to reduce wind blown dust emissions from inactive areas prior to reclamation



## Visual Assessment

### Visual Assessment Goals

- Zavoral Site
  - Review Tiller's visual impact information for accuracy
  - Model site-specific conditions
  - Accurately represent views from key view areas
  - Identify mitigation measures
- Scandia Mine
  - Identify visual impacts from aggregate mined at Zavoral Site being used at Scandia Mine

### Review of Tiller Information

- Tiller's visual information was reviewed by AECOM & determined to accurately reflect existing & proposed Project conditions
- Review resulted in additional key viewpoint not previously included in Tiller's information -from bike trail west of Site & east of TH 95

### Visual Assessment Considerations

- Effects on existing scenic integrity & scenic attractiveness
- Level of Project visibility from sensitive viewing areas such as St. Croix National Scenic Riverway, TH 95 & TH 97, bike trail, & bluff line on Wisconsin side of St. Croix River

### Visual Assessment Considerations

- Compliance with Scenic Management Objectives of Lower St Croix CMP, City of Scandia Comprehensive Management Plan & Ordinance No. 103, & regulation of scenic resources identified regulations & planning documents

### Modeled Key Viewpoints

- AECOM selected 3 representative key viewpoints
- Provide most potential for unimpeded views of Site interior
- Represent areas where viewers would have concern for scenic quality of landscape

### Modeled Key Viewpoints

- Prepared existing conditions & photographic simulations of proposed Project
  - Key viewpoint 1: On bike path E of TH 95 within 1/4 mile of SW Site boundary
  - Key Viewpoint 2: On TH 97, 1/4 mile W of Site
  - Key Viewpoint 3: On TH 95, 1/4 mile N-NW of Site



### Key Viewpoint 1–Existing Conditions



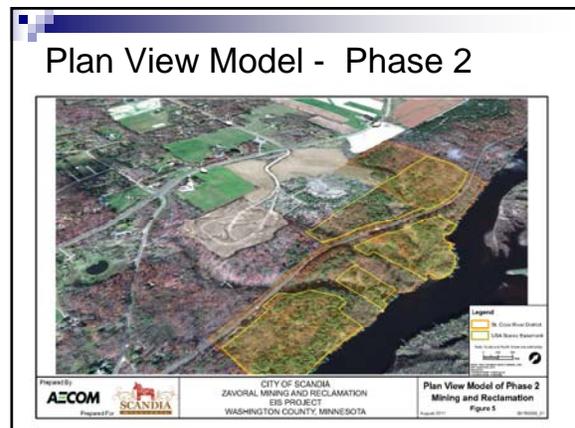
### Key Viewpoint 1–Proposed Mine





### Prepared Visual Model

- Computer-generated representation of Phase 2 Mining & Reclamation with the most extensive & visible site disturbance



### Findings

- Majority of visual impact would result from short-term site preparation activities
  - Realignment of the Site access, construction of a turning lane, internal main haul road construction, construction of screening berms, & tree removal
- Long-term effects
  - Mining & reclamation activities would not be visible, or would be partially visible from sensitive viewpoints
  - Alternatives 1 & 3 difference length of time impacts would occur – overall & annually

### Findings

- No change in scenic attractiveness of overall landscape
  - Due to complete or partial screening of proposed facilities by existing landforms & vegetation, or proposed berms
  - Site would be reclaimed to a natural landscape appearance - would restore scenic integrity of Site
  - Successful reclamation could enhance scenic attractiveness of Site

### Findings

- Proposed Project would not be visible to boaters and other recreationists on St. Croix River, or from bluff line in WI
- Can be seen from some viewpoints, but does not attract attention because most activities would be screened

### Scandia Mine Site

- No change in operations so no visual impact is anticipated

### Potential Visual Mitigation Measures

- Establishing a maximum stockpile height limit of approximately 880 feet msl
- Locating stockpiles on the west side of Site should be minimized
- Limit non-daylight lighting to what is required for safety & security- should be shielded, downward-directed

### Potential Visual Mitigation Measures

- Fully implement & monitor reclamation activities to ensure
  - Occurring as planned
  - Meets pre-determined criteria established by City to confirm success of reclamation
- Monitor proposed transplanting of native white pine trees to verify maintenance & watering & to assess survival rates



## Reclamation & Forest Management Plan Improvements

AECOM & Pizzo Associates Ltd - Review of Tiller's Plans

### Topsoil

- Test On-Site Soils
  - Have agronomist evaluate suitability for use as topsoil
- Soil Criteria – City Approval
  - Topsoil specification
  - Specific standards to preclude invasives & weed species
  - Minimum required topsoil thickness
  - Subgrade preparation methods

### Seed Mixes

- Modify Seed Mixes
  - Increase permanent native seeds per square foot
  - AECOM has developed modified seed mix
- Cover crop specification
  - Use ReGreen rather than Winter wheat (fall)
  - Identify specific method for permanent seeding after cover crop established

### Define success & remedial actions-City Approval

- Criteria for determining successful seeding & when re-seeding or weed control is required
- Percent cover requirements
- 5 rather than 3 year establishment period
- Define weedy plants
- List of acceptable herbicides

### Define success & remedial actions-City Approval

- Adaptive management plan
- Increased frequency of mowing & herbicide treatment during establishment period

### Forestry Management Plan

- Consider adding savannah habitat as transition from native grassland to forest
- Expand Invasive & aggressive native species control

### Active Long Term Stewardship

- Address long term management & related responsible party & funding source
- Forestry on an annual basis
- RCG monitoring & follow up herbicide treatment
- Overall long term management

### Transplanting Native Pine Trees

- Describe time of year, size of trees & method used to transplant
- Show location of tree plantings



### BRKW Appraisals, Inc.

- Michael J. Bettendorf, MAI
- Certified General Real Property Appraiser

### Study Goal

- To determine whether proposed mining operation would have negative impact on property values within a 1-mile radius (impact area) of Site
- In property transaction a gravel mine becomes 1 of many factors considered

### Sales of Comparable Homes

- Conducted analysis of single family residential sales close to & further removed from gravel mines & sites with perceived environmental hazards
- To avoid corruption of data due to declining home prices, single family sale activity in 2006 & 2007 selected for study

### Areas Considered in Study

- Maple Grove Gravel Area
- Hastings Gravel Mine
- Rosemount Gravel Mine/Demolition Landfill
- South Andover Superfund Site
- Scandia Site
- Franconia Township
- West Lakeland Township

### Maple Grove Example

One example from group evaluated in vicinity of Maple Grove gravel operations



### Example Comparison

Sale 1B - \$320,300 (1 mile from gravel mine)  
 Sale 1A - \$319,103 (1/4 mile from gravel mine)  
 Result \$1,197 – 0.03% impact

- Property closer gravel operation sold for 0.03% less than a property 1 mile away

### Findings

- Analysis of comparable sales produced a range of 0% to 3.3% negative impact resulting from proximity to operating facility
- Basically the analysis is inconclusive as to whether existing operation would impact property values

### Findings

- Zavoral Site has not been operated as a gravel mine for over 20 years
- Proposed Tiller operation has same effect as introduction of new gravel mining operation into an area

### Impact Timeframe

- Property value impact would remain as long as facility is in operation
- Impact would diminish as reclamation occurs- to a level of 0 with successful of reclamation

### Use of Information

- TM presents possible impacts to property values for EIS process - if property were sold during period facility in operation
- County Assessor would not prospectively lower property values or related tax rates for groups of properties based on changes that may or may not occur in the future



## Traffic Evaluation Update

### Traffic Evaluation Update

- Data Collection (update traffic & crash data)
- Traffic Analysis & Evaluation (existing & alternatives)
- Safety Evaluation (updated information on crash data & trail plans)
- Mitigation Measures

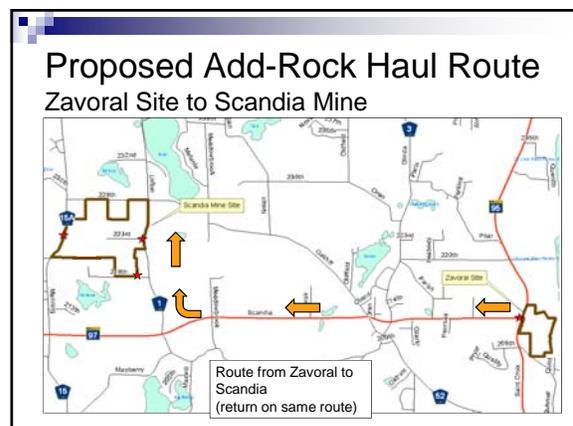
### Crash Data – Key Items

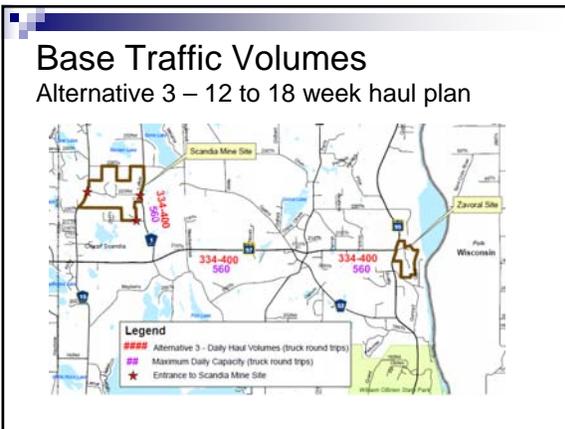
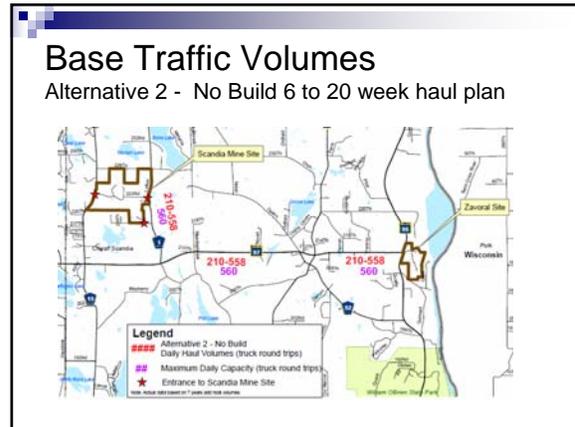
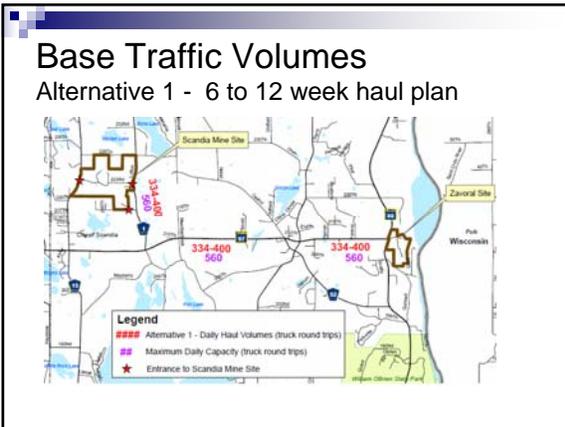
- Mn/DOT provided updated verified dataset for 2008-2010
- Mapped & evaluated crash data for 2008-2010
- TH 97 & Lofton intersection had highest number of crashes, but is not considered a hazardous intersection (12 in 3 years, 4 run off road)
- In 2006, pedestrian fatality (hit by semi-trailer) - State Patrol determined it was a judgment error by the pedestrian

### Projected Add-Rock Haul Traffic

Mine Life (Years)	Projected Add-Rock Mined	Projected Loads/Year (Based on 24-Tons/Truck)	Projected Loads/Day (Range based on loads and add-rock mined)	Max. Scandia Mine Capacity Loads/Day (10 hours * 28 trucks/hr)
<b>Alternative 1</b> 5 to 10 years (6 to 12 Week Haul Event)	120,000 to 240,000 t/yr	5,000 to 12,000	167-200 trucks 334 -400 trips	280 trucks 560 trips
<b>Alternative 3</b> 5 years or less (12 to 18 Week Haul Event)	240,000 to 360,000 t/yr	10,000 to 18,000	167-200 trucks 334-400 trips	280 trucks 560 trips

**Alternative 2 – No Build** (6 to 20 weeks operating per year)





- ### Update Items
- Mn/DOT Driveway Review
    - Right turn lane northbound required
    - Sight distance on TH 95 meets requirements
  - City of Scandia Trail Plan
    - Off road trails planned on TH 95 & TH 97
    - New crossings planned on TH 97 at Oakhill & Ozark, recommend safety review with Mn/DOT

- ### Potential Mitigation - Roadway
- Construct new driveway access directly across from TH 97 - safer access (Mn/DOT requirement) – already in Tiller Plan
  - Construct northbound right turn lane on TH 95 into Site (Mn/DOT requirement)
  - A warning sign with yellow flashers could be installed to alert traffic on TH 95 when trucks are actively hauling at Zavoral Site

- ### Potential Mitigation - Trails
- Relocate bike trail running along TH 95 & re-establish the trail connection
  - Work with City re: trail plan along TH 97 - should be coordinated with Mn/DOT to provide safe a bicycle route & avoid conflicts with vehicle traffic on TH 97
  - Consider Tiller contribution to trail construction & connection re-establishment as mitigation

**Potential Mitigation – Truck Traffic**

- Limit trucks hauling add-rock to Scandia Mine to level in DEIS or below
- Document hauling traffic level



**Q & A**



**Final PAC Meeting**



**Public Questions**