Designing for Equity: A Multi-modal Corridor Design

Darby Turnbull
Research Question:

• How can design improve transportation equity through the development of an accessible multi-modal corridor?
Introduction
How will I address the Research Question?
Researchable Question: How can transportation equity be improved through the development of an accessible multi-modal corridor?
What is Equity?

Equality vs. Equity (Image: Interactioninstitute.org)
What is Equity?

**Equality**
The assumption is that everyone benefits from the same supports. This is equal treatment.

**Equity**
Everyone gets the supports they need (this is the concept of “affirmative action”), thus producing equity.

**Justice**
All 3 can see the game without supports or accommodations because the cause(s) of the inequity was addressed. The systemic barrier has been removed.

*Interactioninstitute.org*
What is Projective Design?
Researchable Question:
How can transportation equity be improved through the development of an accessible multi-modal corridor?
Site Location

• Ford Parkway is located on the South Western side of Saint Paul.
• Adjacent to the Mississippi River
Site Photos
Inventory and Analysis
Ford Parkway

- Commercial: 94%
- Residential: 6%

Inventory and Analysis

- Ford Site will be 37 dwelling units/acre
- Current surrounding neighborhood is <15 dwelling units per acre
Inventory and Analysis
Annual Average Daily Trips

• Projected Daily Trips will be
  • 17,000 – 24,000 Post Development
  • 6,000 Transit Trips
  • 6,000 Non-motorized Trips
Current Level of Service
Demographics

Race and Ethnicity for Saint Paul, Minnesota

- **White**: 66.40%
- **Black or African American**: 13.00%
- **Asian**: 14.00%
- **American Indian and Alaska Native**: 0.70%
- **Some other race**: 2.90%
- **Two or more races**: 2.90%
- **Hispanic or Latino origin (of any race)**: 8.90%

Data: American Fact Finder Census Survey 2018
Inventory and Analysis

Data: American Fact Finder Census Survey 2018
Design Programs

- Ecological Design Program
- Pedestrian Design Program
- Auto-centric Design Program
Projective Design Programs
Designs
Design 1: Auto-centric

8' Wide Walkway
12' Wide Parking Lane
12' Wide Driving Lane
10' Wide Median with Turn Lanes
12' Wide Drive Lane
12' Wide Drive Lane
12' Wide Parking Lane
8' Wide Walkway
Design 1: Auto-centric
Design 2: Pedestrian

- Transit Shelters
- Bicycle Turn Boxes
- Angled Crossings
- 12' Wide walkways
- Off-Street Walkways
- 6' Bicycle Lanes
- Traffic Calming Medians
Design 2: Pedestrian

- One-Lane Traffic
- Transit Shelter
- Wayfinding
- Off-street walkway
- 6’ Bicycle Lane
- 12’ Wide Sidewalk
Design 2: Pedestrian
Design 3: Ecological

Native Plant Species: Plants to support the natural Maple basswood forests
European Black Alder (Alnus glutinosa)
Apricot Manchurian (Prunus armenica var mandshurica)
Paper Birch (Betula papyrifera)
River Birch (Betula nigra)

4% Slope towards Mississippi River

vegetated swale with amended soils for water filtration-outlet to the bioretention pond

Plantings to include pollinator habitat

Original 4 Lanes reduced to 2 lanes, reducing impervious surface by 30%
Design 3: Ecological

- Native plant materials to the Southeast/central Minnesota Region
- Habitat Support for pollinators and avian species
- Vegetated swales with additional plant materials to support pollinators
- 6" wide walkways
- Permeable pavers to allow for infiltration
Design 3: Ecological
Evaluation
### Evaluation

- Total Points in Sites Evaluation=200
- Points relating to equity=30
- 15% of the evaluation addresses the needs of the users in regards to equitable space allocation

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<th>6: SITE DESIGN - HUMAN HEALTH + WELL-BEING</th>
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<td>HHWB C6.11 Support local economy</td>
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Evaluation: LEED

• This highlights where LEED addresses components of equitable streets.

• 41/110 = 37% of the Neighborhood design criteria for this portion of the evaluation:

• Neighborhood Development
Evaluation

Total: 71 Points
Auto-centric: 10
Pedestrian: 45
Ecological: 37

High Performing Design: 47-71
Moderate Performing Design: 24-46
Low Performing Design: 0 - 24
Results
Results

Total: 71 Points

Auto-centric: 10

Pedestrian: 45

Ecological: 37
Results

• Auto-centric
  • No bicycle infrastructure
  • Narrow unprotected walkways
  • No stormwater management for clean green spaces
  • No protected crossings
  • No amenities for people to utilize

• Pedestrian
  • No stormwater management facilities
  • Limited Vegetation
  • No attention to native plant species
  • No Soil conservation
  • No effort to maximize green area potential

• Ecological
  • Limited Pedestrian infrastructure
  • Limited visibility
  • No signalized crossings
  • No medians for safety
Conclusion
Conclusion

• Integration of Designs
• Designers need to advocate for the users
• Evaluation for Equity
• Inclusive Design
Final Thoughts

• High need for an evaluation metric that addresses equity in design
• Designers need to be the advocate for the public space
Limitations

TIME

FUNDING
Next Steps

- Community engagement
- Surveys
- More scenarios
- Evaluate the Evaluation


