TRANSPORTATION MASTER PLAN

WELCOME

Informational Meeting
Room 233
Vision and Goals

Primary Vision
To seek improved functionality, efficiency, compatibility, and form within MSU’s transportation and parking system.

Goal 1
Enhance mobility for MSU employees, faculty, students, and visitors.

Goal 2
Protect existing parking facility investments and identify future parking needs and locations based on projected demands.

Goal 3
Improve multimodal connectivity between the campus and off-campus destinations.

Goal 4
Reduce the number of single occupant vehicles on and around campus.

Parking Location and Inventory

Parking Locations
- MSU maintains 25 separate permitted parking lots
- Visitor, metered, and public parking areas are also available
- As of September 30, 2015, 6,480 parking stalls were available

Parking Utilization Rate
- Average parking utilization rate represents an average percent of available parking occupied between 8am and 5pm.

Summary of Parking Stalls, by Type

<table>
<thead>
<tr>
<th>Permit</th>
<th>Eligibility Requirement</th>
<th>Lot Type</th>
<th>Number of Stalls</th>
<th>Percent of Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI</td>
<td>Commuting students, faculty and staff</td>
<td>BI, E, F, FH</td>
<td>2,977</td>
<td>38.3%</td>
</tr>
<tr>
<td>B</td>
<td>Students living on-campus</td>
<td>E, F, FH</td>
<td>2,166</td>
<td>29.1%</td>
</tr>
<tr>
<td>F</td>
<td>Students living on-campus, commuting students, faculty, and staff</td>
<td>F</td>
<td>1,368</td>
<td>19.6%</td>
</tr>
<tr>
<td>R*</td>
<td>Commuting students, faculty and staff</td>
<td>BI, E, F, FH, R*</td>
<td>346</td>
<td>4.7%</td>
</tr>
<tr>
<td>ADA*</td>
<td>State issued handicapped parking tag and an F parking permit</td>
<td>BI, E, F, FH</td>
<td>145</td>
<td>2.0%</td>
</tr>
<tr>
<td>Hourly</td>
<td>Hourly visitor parking spot</td>
<td></td>
<td>306</td>
<td>4.2%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>5,850</td>
<td>100%</td>
</tr>
</tbody>
</table>

Peak Utilization – 79%

Average Utilization – 72%

Parking Study
- Utilization study was performed on September 29th and 30th, 2015
- Data were collected every hour between 8:00 AM and 5:00 PM for each parking lot

<table>
<thead>
<tr>
<th>Lot Type</th>
<th>Number of Stalls</th>
<th>Average Utilization</th>
<th>Peak Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI</td>
<td>2,371</td>
<td>85%</td>
<td>96%</td>
</tr>
<tr>
<td>B</td>
<td>144</td>
<td>94%</td>
<td>100%</td>
</tr>
<tr>
<td>F</td>
<td>1,368</td>
<td>15%</td>
<td>17%</td>
</tr>
<tr>
<td>Total</td>
<td>5,883</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
## Traffic Data and Characteristics

### Level of Service

<table>
<thead>
<tr>
<th>Average Delay per Vehicle (sec) - Signalized</th>
<th>Average Delay per Vehicle (sec) - Unsignalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>10 to 20</td>
<td>10 to 15</td>
</tr>
<tr>
<td>20 to 35</td>
<td>15 to 25</td>
</tr>
<tr>
<td>35 to 50</td>
<td>25 to 35</td>
</tr>
<tr>
<td>50 to 80</td>
<td>35 to 50</td>
</tr>
<tr>
<td>&gt; 80</td>
<td>&gt; 50</td>
</tr>
</tbody>
</table>

### Traffic Data Collection
- Data collected included volume and turning movements
- Automobiles, pedestrians, and bicyclists counted
- Collection occurred on October 21st, 2015

### Intersection Vehicular Volumes

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM Peak</th>
<th>PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>11th Ave &amp; College St</td>
<td>1,236</td>
<td>1,692</td>
</tr>
<tr>
<td>8th Ave &amp; College St</td>
<td>847</td>
<td>1,013</td>
</tr>
<tr>
<td>11th Ave &amp; Grant St</td>
<td>630</td>
<td>1,047</td>
</tr>
<tr>
<td>7th Ave &amp; Grant St</td>
<td>457</td>
<td>632</td>
</tr>
<tr>
<td>11th Ave &amp; Lincoln St</td>
<td>587</td>
<td>1,138</td>
</tr>
<tr>
<td>11th Ave &amp; Kagy Blvd</td>
<td>1,575</td>
<td>1,941</td>
</tr>
<tr>
<td>7th Ave &amp; Kagy Blvd</td>
<td>1,386</td>
<td>1,504</td>
</tr>
</tbody>
</table>

### Intersection Pedestrian Volumes

<table>
<thead>
<tr>
<th>Intersection</th>
<th>AM Peak</th>
<th>PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>11th Ave &amp; College St</td>
<td>62</td>
<td>86</td>
</tr>
<tr>
<td>8th Ave &amp; College St</td>
<td>57</td>
<td>92</td>
</tr>
<tr>
<td>11th Ave &amp; Grant St</td>
<td>455</td>
<td>517</td>
</tr>
<tr>
<td>7th Ave &amp; Grant St</td>
<td>272</td>
<td>231</td>
</tr>
<tr>
<td>11th Ave &amp; Lincoln St</td>
<td>229</td>
<td>232</td>
</tr>
<tr>
<td>11th Ave &amp; Kagy Blvd</td>
<td>73</td>
<td>92</td>
</tr>
<tr>
<td>7th Ave &amp; Kagy Blvd</td>
<td>39</td>
<td>48</td>
</tr>
</tbody>
</table>

### What is Level of Service (LOS)?
- Grading system based on unnecessary delay to vehicles incurred at intersections
- Grades range from "A" to "F"
- "A" represents little to no delay
- "F" represents substantial delay
- LOS "C" or better is generally accepted as adequate performance

### Intersection AM Peak PM Peak

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Intersection Recommendations

Characteristics of Recommended Intersection Configurations

Urban Compact Roundabouts
- Intended to be pedestrian-friendly
- Capacity should not be a critical issue when considering this configuration
- Entries are more perpendicular to promote lower speeds
- Raised splitter islands that incorporate pedestrian refuges

All-way Stop Protected Intersection
- Pedestrian and bicyclist focused design
- Protected bicycle approaches
- Shortened roadway crossing distance for pedestrians
- Can be constructed within limited right-of-way
- Can create bicyclist/pedestrian conflicts

Conceptual All-Way Stop Controlled Intersection at 11th Ave. and Grant St.
Roadway Recommendations

**Montana State University Boundary**

### Future Roadway Extensions on MSU Property
- Garfield Street – Fowler to Ferguson Avenues
- Kagy Boulevard – 27th Avenue to Ferguson Avenues
- South 27th Avenue – Garfield Street to Kagy Boulevard
- Fowler Avenue – Garfield Street to Kagy Boulevard
- Ferguson Avenue – Huffine Lane to Kagy Boulevard

### Committed Extensions outside MSU Property
- Graf Street – 19th Avenue to S. 3rd Avenue
- South 11th Avenue – Opportunity Way to Brookdale Drive

### Future Roadway Extensions outside MSU Property
- Ferguson Avenue – Kagy Boulevard to Johnson Road
- Kagy Avenue – 22nd Avenue to 27th Avenue
- Kagy Boulevard – Ferguson Avenue to Cottonwood Road

### Committed Extensions outside MSU Property
- Graf Street – 19th Avenue to S. 3rd Avenue
- South 11th Avenue – Opportunity Way to Brookdale Drive

### Future Extensions on MSU Property
- Grant Street – 19th Avenue to S. 3rd Avenue
- South 11th Avenue – Opportunity Way to Brookdale Drive

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**Recommendation Details**

**11th Avenue**
11th Avenue is a vibrant, multi-use corridor that provides important north/south travel through MSU.

**Grant Street**
Grant Street should be considered for closure to vehicular traffic between the east North Fieldhouse Lot access and the SUB’s western access.
# Transportation Demand Management (TDM)

**What is Transportation Demand Management (TDM)?**
- In short, TDM are programs and policies that encourage transportation alternatives to single occupancy vehicles.

**How can TDM reduce single occupancy vehicles?**
- Promoting alternative modes of transportation
- Land use planning that does not focus on the automobile
- Education programs that raise awareness of transportation alternatives

**What are the benefits of TDM?**
- Reduced demand on roadway infrastructure
- Reduced demand on parking infrastructure
- Reduced greenhouse gas emissions

## Potential TDM Strategies

### Bicycle/Pedestrian Strategies

- **Improve Bike Parking/Storage**
  - Construct sheltered bike rack at more location on campus, including rental bike lockers at the SUB and other locations

- **Signage/Wayfinding Kiosks at Parking Locations**
  - Add additional maps on kiosks in heavily traveled pedestrian areas.

- **Passenger Drop-off Locations**
  - Construct locations for vehicles to safely exit the traffic stream to drop-off passengers.

- **Improve Pedestrian Crossings on South 11th Avenue**
  - Increase the visibility to crosswalks on South 11th Avenue to promote an increased sense of safety for pedestrians.

### Policy Strategies

- **TDM Marketing Program**
  - Market through flyers, signs, etc. the benefits of using other modes of transportation, carpooling, schedule shifting, etc.

- **Incentivize Freshman not having a Car**
  - Create a program that incentivized not having a car for freshman or on-campus residents.

- **Establish Parking Price Tiers Based on Distance from Campus to Student/Faculty/Staff’s Residence**
  - Make parking permits expensive for individuals that live within a given distance to campus.

- **Parking Pricing Based on Lot Distance to Campus Core**
  - Charge more for parking closer to campus core.

- **Make New Dorms Transit Oriented**
  - Construct new dorms with transit stops in convenient locations to promote the use of transit by dorm residents.

### Ride Share/Other Vehicular Strategies

- **Campus Specific Ridesharing App or Carpool Pairing App**
  - Create a ridesharing/carpooling program that is open to only MSU students, faculty, and staff.

- **Zip Cars or Car Sharing**
  - Provide a small pool of rental vehicles that are available to students, faculty, and staff.

- **Guaranteed Ride Home Program (Faculty/Staff only)**
  - Provide guaranteed transportation for faculty/staff that use active modes of transportation in the event of weather, unforeseen circumstances, or missed busses.

- **Construct Distant Park and Ride lot with Shuttle Service**
  - Construct a parking lot away from the campus core and provide shuttle service to and from the lot to the campus core.

- **Incentivize Transit Use**
  - Provide incentives for those who ride Streamline to campus.

- **Preferential Carpool Parking**
  - Designate parking areas for vehicles with two or more occupants.