

18 July 2012

To University of Oregon, Athletic Department
From Madeline Phillips and Bethany Steiner, Community Planning Workshop
SUBJECT MATTHEW KNIGHT ARENA MONITORING REPORT: PHASE II

Background of the Project

The Matthew Knight Arena (further referred to as “the Arena” and MKA), which opened for operations in January of 2011, has a capacity of 12,000 spectators. The Arena is home to the University of Oregon’s Men’s and Women’s Collegiate Basketball teams, as well as host to a number of other types of spectator events. The multipurpose nature of the Arena makes for a versatile venue, allowing sports fans and community members to enjoy performances of all kinds.

University of Oregon Athletics partnered with the Community Planning Workshop to conduct a second phase of monitoring of the Matthew Knight Arena. Similar to the previous year’s monitoring (Phase I, 2011), three athletic events and one non-athletic event were monitored for Phase II.

Events Monitored

During phase II we monitored the events listed in **Table 1**.

Table 1: Monitored Events, 2012

EVENT	LEVEL	ATTENDANCE	DATE/TIME	WEATHER
Men’s Basketball vs. OSU	Level 4	10,969	Sunday, Jan 29 3:30pm	Rainy, 49°F
Men’s Basketball vs. UW	Level 4	9,035	Thursday, Feb 9 8pm	Foggy, 50°F
Brad Paisley	Level 4	8,953	Friday, Feb 10 7:30pm	Rainy, 43°F
Women’s Basketball vs. Cal	Level 1	1,508	Thursday, Feb 16 7pm	Overcast, 40°F

Source: University of Oregon Athletics

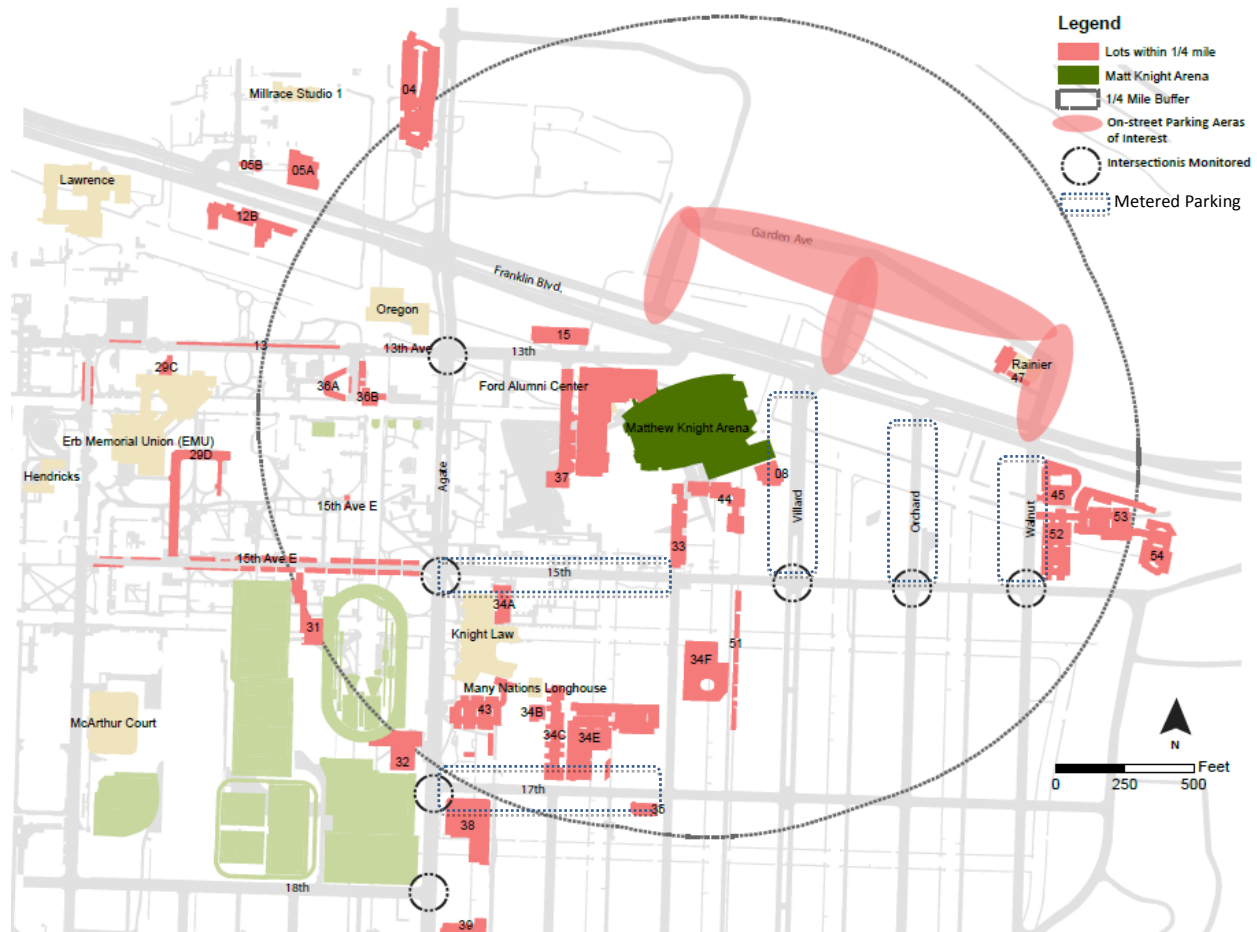
Phase II: Scope of Work

Parking

Phase II of Arena Monitoring focused on parking opportunities within a ¼ mile radius of Matthew Knight Arena (**Figure 1**) instead of looking at all parking lots on the University campus. This phase focused on a few new elements that were not included in last year's monitoring:

- On-Street Parking north of Franklin Boulevard, specifically on Garden Avenue
- On-Street Metered Parking just north and west of the Arena Parking District
- Private Parking at restaurants, hotels, and other businesses on Franklin Boulevard

Figure 1: Parking Areas and Intersection Monitored



Intersections

Seven intersections were monitored, as identified by **Figure 1**:

- 13th Avenue and Agate Street
- 15th Avenue and Agate Street
- 15th Avenue and Villard Street
- 15th Avenue and Orchard Street
- 15th Avenue and Walnut Street
- 17th Avenue and Agate Street
- 18th Avenue and Agate Street

Bicycles

CPW monitored bicycle parking on both the East and West sides of the Arena, with attention focused on identifying where patrons preferred to park their bicycles when attending an Arena event. Bike Valet parking was also observed to record how many patrons used this service.

Transit

Transit counts were collected from Lane Transit District specifically for ridership on EmX, while First Student provided ridership counts for attendees using the Arena Shuttle service. This method is identical to Phase I of Arena Monitoring.

We did not monitor for litter and noise, nor did we monitor parking available in University Parking Lots beyond the ¼ mile buffer of the Arena.

METHODOLOGY

CPW employed a range of methods to monitor parking and intersections around the Matthew Knight Arena. These particular methods were chosen in the interest of determining how event-goers arrived at the Arena and how well the intersections functioned for the four events monitored. A mode split derived from data collected allows CPW to compare mode share across multiple athletic seasons.

Automobile Parking

With its proximity to both the University of Oregon's campus and the Fairmount Neighborhood, parking automobiles around Matthew Knight Arena can be challenging. Since most Matthew Knight Arena events occur outside of business hours, parking demand for Arena events is high while University parking demand is low. This sharing of parking facilities, according to the Arena Impact Mitigation Agreement (AIMA) and Institute of Transportation Engineers standards, can reduce "total parking demand."

The Community Planning Workshop derived parking counts presented in this report from the number of cars parked in University of Oregon parking lots within ¼ mile of the Arena, Private Parking opportunities within the study area, and On-street Metered and Unmetered Parking. Car counts provided a measurement of vehicles carrying event-goers to the Matthew Knight Arena.

Monitors counted all cars in **University Parking Lots** within ¼ radius of the Arena one hour prior to each event start time, and then repeated one hour after the event had started. From the change in these two values we derived the number of cars parked in the selected University Parking Lots for the Arena event. (CPW cannot be sure that all cars parked in counted lots are actually attending Arena events, however these values provide a close approximation of those spectators arriving by automobile.)

After review of values derived from the change in cars parked from one hour prior to one hour after each event started, CPW made note of the remarkably low number of vehicles recorded by our method. Our hypothesis is that our pre-event numbers were not being gathered early enough to capture the accurate share of automobiles parking for MKA Events. To avoid missing a large portion of the cars parked for the monitored events, we chose to use values collected during the event to best represent the actual number of vehicles parked for the Arena event.

Non-metered **On-street parking** on city streets north of Franklin Boulevard, specifically on Garden Avenue, was counted one hour prior to each Arena event, and again one hour after the start of each event. CPW counted cars in the **Arena Parking District** on two separate occasions outside of the four events discussed in this study. An average of these numbers provides an estimate as to how many J Permitted¹ and non-permitted vehicles typically park in the Arena Parking District during an athletic event. The University of Oregon Athletic Department provided CPW with the number of permits sold to non-residents to park in the Arena Parking District.

Metered parking on Villard, Orchard, and Walnut north of 15th Street, as well as 15th and 17th Streets just East of Agate Street, represent an additional type of on-street parking monitors counted for this report. Using the City of Eugene's Parking data we were able to isolate those parking meters that were activated 1 hour prior to monitored events, indicating a car was parked at that meter.

Many of the restaurants, hotels, and other private parking lots along Franklin Boulevard offer parking opportunities; however, few of the businesses maintain records for the number of cars parked during each event. Monitors counted **Private Parking Lots** along Franklin Boulevard one hour prior to the event and again one hour after the start of the Arena event. Careful attention was paid to count only cars in designated "sold" areas of identified private parking lots.

Often, parking for an event is coupled with the purchase of dinner and/or other related sale. Payment schedules were investigated early in the monitoring process and varied among these parking lots (A detailed list of these lots can be found in **Appendix C**). This data gathered through conversations with businesses along Franklin Boulevard informed CPW's monitoring practices for private parking lots.

Based on traffic studies performed for the Transportation Demand Management Plan, each vehicle parked for the event is estimated to carry 3.35 spectators.²

Transit

Two forms of transit provide service to the Matthew Knight Arena. Riders can access the Arena on Eugene-Springfield's bus rapid transit system, or have the option of park-and-ride service provided by First Student from locations at Springfield Station, Downtown Eugene, and Autzen Stadium.

¹ J Permits are issued to residents of the Fairmount Neighborhood, allowing residential vehicles to park in the Arena Parking District without time restriction.

² JRH Transportation Engineering, "Transportation Demand Management Plan for the Conditional Use Permit" 17 October 2008, p. 36

EmX

Lane Transit District, the provider of regional public transit service in Lane County, provides Bus Rapid Transit service to the Matthew Knight Arena. The “Emerald Express” also colloquially referred to as “EmX” stops within the ¼ mile study area. Data used to measure EmX ridership was provided by Lane Transit District. To estimate the number of riders on EmX specifically attending events at the Matthew Knight Arena, total “on’s” and “off’s” are normalized by subtracting similar values taken on a “control” day, an average afternoon or evening comparable to that of the event. By subtracting the control day’s on’s and off’s, the resulting surplus of ridership is assumed to be event traffic.³ (See Appendix A)

First Student Shuttles

First Student, the local provider of bussing services for Lane County, provides shuttles from designated parking locations directly to the Matthew Knight Arena. Shuttles leave on the half-hour for approximately 1.5 hours prior to an event, providing non-stop service to the Arena. Ridership recorded from each event was used in the calculation of total attendees arriving by transit.⁴ (See Appendix B)

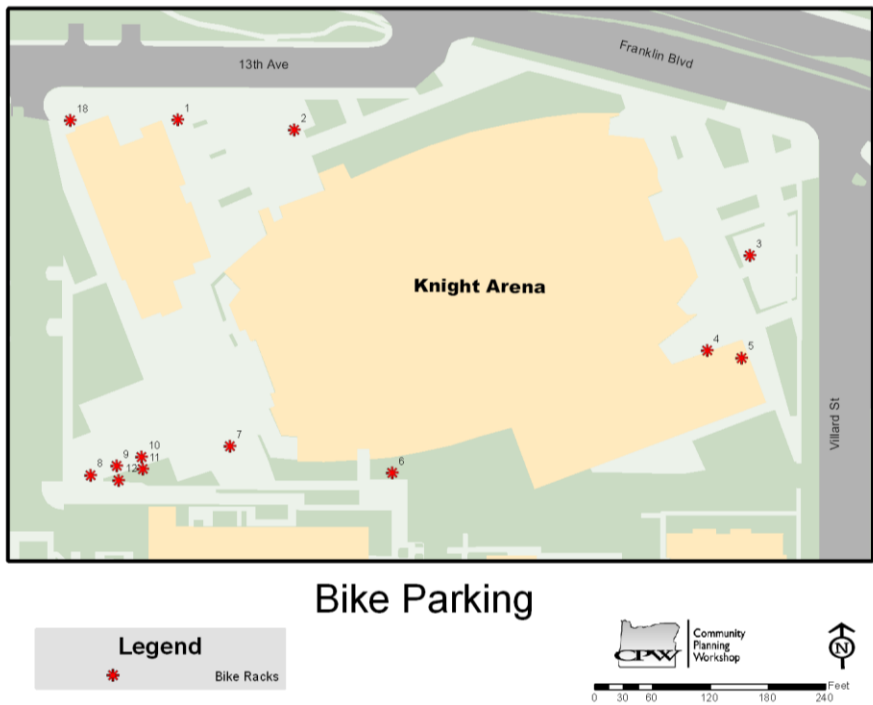
Bicycle Parking

Bicycle parking facilities are located to the West, North, and South of the Matthew Knight Arena with a capacity of approximately 404 bicycles (See **Figure 2**). In addition to the 148 unattended bicycle parking, the Arena also has a Bicycle Valet Parking area within 50 feet of the Arena’s East Entrance, indicated in **Figure 2** as Rack 3. The Bicycle Valet Parking area has a capacity of approximately 256 bicycles.

³ Data provided by Lane Transit District contact Will Mueller, Service Planning Manager.

⁴ Data provided by First Student contact Delwin Loucks, Safety Manager.

Figure 2: Bicycle Parking Facilities at Matthew Knight Arena



To determine the number of individuals arriving by bicycle to Matthew Knight Arena events, a similar methodology to automobile parking was employed. Bicycles parked at MKA Bicycle Parking facilities were counted one hour prior to the start of the event. Bicycles were counted again one hour after the start of the event. The change in these numbers represents the number of spectators arriving by bicycle to a given event. “Rogue” bicycle parking was also recorded, looking specifically for those bicycles attached to parking meters, signposts, or any other non-designated bicycle parking facility.

Intersections

Seven intersections around the Matthew Knight Arena were monitored for the purposes of this project. Each intersection was observed for approximately one hour prior to each event, and again at the conclusion of each event until “normal” levels of traffic returned. “Normal” traffic levels are different for each intersection, especially those intersections within our study area which do not have traffic signals.⁵ Monitors used queued cars as a measure of “normal” traffic; less than five cars stacked at an intersection indicated normal traffic levels had returned.

Monitors followed careful instructions to observe characteristics of each intersection. Four of the seven intersections monitored for this report are controlled using flaggers before Level 4

⁵ According to the City of Eugene’s Traffic Operations Safety Analysis, Attachment A, Table 1 found at http://www.eugene-or.gov/portal/server.pt/gateway/PTARGS_0_2_218328_0_0_18/Rasor%20MUC%20Traffic%20Operation%20Safety%20Analysis.pdf Most unsignalized intersections in Eugene can be considered to have a Level of Service (LOS) where cars never have to wait more than 35 seconds to make their move; this would translate to a LOS of C or better, and for the purposes of this study, this would equate to “normal” traffic flow through an intersection.

Arena events. Flaggers control three out of seven intersections after the conclusion of these events. Monitors recorded the following information:

- Approximate length of traffic congested at each intersection (both before and after the event);
- Effectiveness of flaggers to control the intersection (if applicable);
- Existing traffic control measures present at the intersection (if applicable);
- Volume of vehicles driving past any existing traffic control devices to enter the Event Parking District (if applicable); and
- Unusual behavior by motorists using the intersection.

Pedestrians

With such close proximity to University of Oregon services, the Arena provides multiple entry points amenable to pedestrian traffic. Based on the total attendance of each event monitored, pedestrians represent the remainder of spectators not accounted for by any other observed mode.

FINDINGS

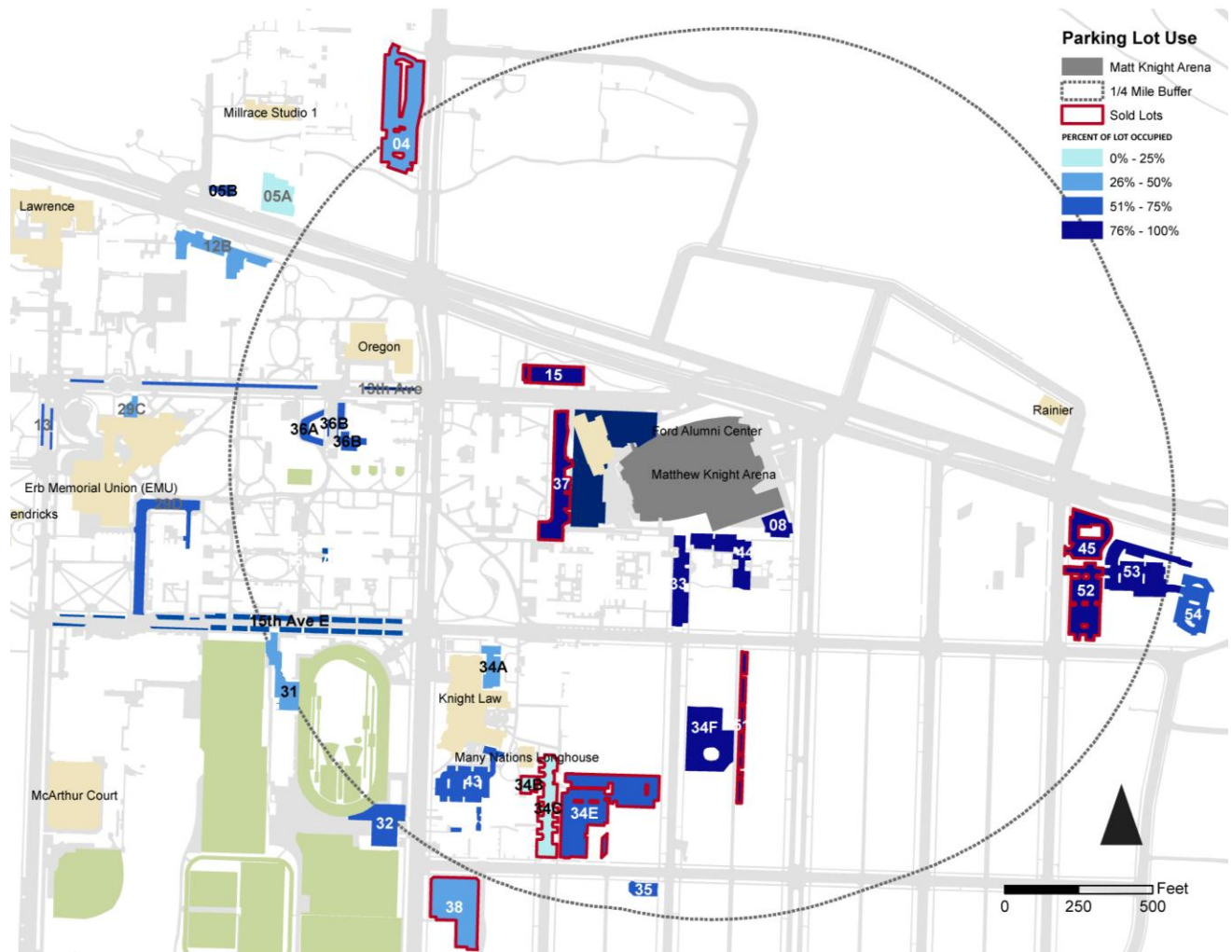
Monitoring of four events at the Matthew Knight Arena produced data regarding parking and traffic behaviors. The data is best explained in segments relative to each of the separate observation methods. When taken together, these findings produce a mode split that describes how Arena-goers get to Matthew Knight Arena events.

University of Oregon Owned Lots

Some University lots require payment of \$10 to park during Matthew Knight Arena events. Lots owned by the University with no attendants are free to park in for Arena events. The University of Oregon sold 10 surface lots and underground parking beneath the Matthew Knight Arena. Many of the lots sold are in close proximity to the Arena, providing ease of access for drivers to event entrances. In some cases, lots sold for Level 4 events were utilized less than free lots (**Figure 3**).

Observed parking trends across the events monitored include some noteworthy patterns of parking use. Athletic events tended to elicit different parking trends than non-athletic events monitored. CPW observed that basketball attendees (Level 4) tended to fill up free lots. Perhaps, after attending multiple games, spectators arriving by car found free, less visible, parking opportunities (smaller lots, tucked into alleys/small streets). Though a sizable number of attendees did use lots that required payment, an average of 37% of attendees of athletic events filled smaller lots, such as Lot 35, which did not require payment. Non-athletic attendees tended to park in larger, more visible lots that were sold by University Athletics. This is likely a result of drawing individuals from out of town, many of whom may not have been familiar with smaller, free lots.

Figure 3: Average Percent of Capacity Utilized in Monitored Parking Lots during Level 4 Events



The start time of events influenced the availability of parking in sold and free lots. Most lots owned by the University are filled at or near capacity for normal business hours (9:00 – 5:00 PM). For example, one hour before the 6pm start of the Men’s Basketball game on February 9th lots monitored were completely full. This may pose a challenge for drivers looking for parking at this hour (5 pm). As the start time of the basketball game approached (approximately 5:30 pm), these lots mostly cleared out, making spaces available. This poses a unique problem for traffic and intersection congestion, as spectators may get the impression that they should not arrive early to a 6pm event, but rather should rush to find spaces within the half-hour before the game. This could result in significant congestion and/or “circling” of the Fairmount Neighborhood area.

(See **Appendix IV**, University parking lot chart)

Private Parking Lots Near Matthew Knight Arena

Measurements of private parking opportunities varied amongst Franklin Boulevard businesses to the extent that each had a different policy for parking for the event (See **Appendix C**, Private Lot Parking Table). It was very difficult to determine how early event attendees arrived to park in private lots for the Arena event, as some lots required a receipt or other indicator be placed on the dash to show payment, while other lots simply required Arena-goers to park in specified spaces.

In many cases, restaurants along Franklin Boulevard offered subsidized or free parking for those who ate dinner at their establishment. In these cases, cars arrived well before our “one hour prior” measurement. For this reason, we have utilized the count of cars 1 hour past the event start time as the number of cars parked for the event.

Table 2, to follow, shows that private parking lots along Franklin Boulevard make up a significant share of automobiles parked for Arena events. Just over 1,800 spectators used these parking opportunities, representing, on average, nearly 18% of MKA attendance.

On-Street Parking

Areas around the Matthew Knight Arena where cars can park on the street for free, typically have a two hour time restriction during daytime hours. Evening hours after 6pm are not regulated. Most popular among Arena-goers is Garden Avenue, just north of Franklin Boulevard, which has a two hour time restriction on posted signs. For the Level 4 events monitored, Garden Avenue was parked near or at capacity, representing about 145 cars or 490 spectators.

Metered Parking

Parking meters of interest to this report are located on the fringes of the Event Parking District. Primarily on side streets that intersect the east side of Agate Street, as well as streets intersecting Franklin Boulevard just east of the Arena, parking meters were active for three out of the four events monitored. January 29, one of the Men’s Basketball events, fell on a Sunday when meters are not active.

Based on the City of Eugene’s Parking Meter server activity, an average of 123 parking meters activated for the three events when parking meters were active.

Arena Parking District

When the Arena Parking District was active, a J Permit, guest pass, or a special Arena Parking District is required to park on the street beyond the imposed two hour parking restriction. The District is only active for Level 4 Athletic events. During Phase I, License Plate Recognition (LPR) software was used by City of Eugene Parking Services to determine how many cars were parked within the District by recording license plates of every car present. Cars with J Permits, guest passes, or purchased Arena Parking District passes are exempt from the two hour restriction.

Without License Plate Recognition software data available for Phase II, CPW conducted two counts in March, 2012 during Level 4 events (one weeknight, the other on a weekend day). These counts occurred once one hour before the event, and again one hour after the start of the event. CPW documented how many cars were present at those times, as well as how many of the cars present had a J Permit sticker. University Athletics informed us that 49 Arena Parking District passes were issued this season.

The counts taken of the cars parked in the Arena Parking District paralleled the number of cars recorded by LPR data in Phase I. An average of about 170 cars without J Permits and an average of 148 J Permitted cars parked in the Arena District during these two games. No guest or other passes were observed.

Based on the average values used as a proxy for LPR data, approximately 37% of the cars⁶ parked during Arena athletic events in the Arena Parking District are parked in two hour parking spaces. These spectators run the risk of receiving a citation by City of Eugene Parking Services, as many athletic events at the Arena last more than two hours.

MODE SPLIT

The numbers presented in **Table 2** represent the average modal split for Level 4 events only in order to compare mode share across time. (Mode split predictions included in the Transportation Demand Management Plan are specifically for athletic events).

Table 2 represents the average of car counts taken one hour past the scheduled Arena event start time. It is important to note that we used a different methodology to develop the 2012 mode split than was used for the 2011 and the TDM Prediction mode split. Rather than using a subtraction method and relying on assumed constants, such as student ticket numbers as a proxy for pedestrian arrivals, Table 2 captures the volume of spectators as a residual of attendance after auto, transit, and bicycle arrivals are accounted for.

⁶ 118 non-J permitted cars of 318 average total cars = 37% of cars.

Table 2: Mode split

MODE	2012 Estimated Mode Split		2011 Estimated Mode Split		TDM Mode Split Prediction	
	SPECTATORS	%	SPECTATORS	%	SPECTATORS	%
AUTOMOBILE	7,388	74%	8,061	71%	8,625	69%
UO Owned Lots	4,419	44%				
Private Lots	1,804	18%				
City On-Street Parking	491	5%				
City Metered On-Street	675	7%				
TRANSIT	640	6%	1,481	13%	1,750	14%
EmX	177	2%	528	5%		
First Student	463	5%	953	8%		
BICYCLE	56	1%	74	1%	125	1%
PEDESTRIAN	1,918	19%	1,810	16%	1,662	6%

Source: CPW Monitoring 2012, 2011, and TDM.

To assure the accuracy of our revised mode split methodology for the 2012 season, CPW computed benchmark figures using the method employed by the Transportation Demand Management Plan. The TDM Method includes constants, and numbers attained through subtraction. Constants in the TDM method include the number of cars parked in the Event Parking District and On-Site and Adjacent parking, presuming these areas will be full for Level 4 events. Values such as Total arriving by Automobile and On-/Off-Street Parking are attained through subtraction (see footnotes included with **Table 3**). **Table 3** provides a comparison of values attained through the TDM subtraction method in 2012 and 2011.

Table 3: Comparing Men’s Basketball Mode Split Averages Using TDM Prediction Method, 2012/2011

MODE	2012 Mode Split Using TDM Prediction Method		2011 Mode Split Using TDM Prediction Method	
	SPECTATORS	%	SPECTATORS	%
AUTOMOBILE⁷	7,462	75%	8,061	71%
On-Site & Adjacent ⁸	1,605	16%	1,605	5%
On-/Off-Street Parking ⁹	5,288	53%	5,887	14%
Event Parking District ¹⁰	570	6%	570	52%
TRANSIT	640	6%	1,481	13%
EmX	177	2%	528	5%
First Student	463	5%	953	8%
BICYCLE	56	1%	74	1%
PEDESTRIAN¹¹	1,845	18%	1,810	16%

Source: CPW Monitoring 2012, 2011, and TDM.

As noted, the variation between the derived mode split provided in **Table 3** does not significantly deviate from findings above in **Table 2**. This assures CPW that the revised method used in the overall mode split for 2012 is accurate and reliable. Both **Tables 2 and 3** show similar trends in mode share, the most notable being a significant decline in transit use, as well as slightly increased automobile use by Arena-goers. To provide a side-by-side comparison of the two methods, **Table 4** below allows for easy comparison of methods employed by Phases I and II during 2012 and 2011.

Table 4: Comparison of Methods, 2012/2011

MODE	2012 Mode Split Using Revised Method		2012 Mode Split Using TDM Prediction Method		2011 Mode Split Using TDM Prediction Method	
	SPECTATORS	%	SPECTATORS	%	SPECTATORS	%
AUTOMOBILE	7,388	74%	7,462	75%	8,061	71%
TRANSIT	640	6%	640	6%	1,481	13%
BICYCLE	56	1%	56	1%	74	1%
PEDESTRIAN	1,918	19%	1,845	18%	1,810	16%

Source: CPW Monitoring 2012, 2011, and TDM.

⁷ Persons per vehicle = 3.35, see TDM p.36. Number of persons by automobile = Total attendance – number of persons by transit – number of persons by bicycle – number of persons by walking.

⁸ This includes garage parking, on-site surface parking, and adjacent parking for a total of 479 spaces. We assume that all on-site and adjacent spaces are fully utilized for Men’s Basketball games.

⁹ Number of Persons parked off-street = number of persons by automobile - number of persons parked in private lots - number of persons parked at metered spots - number of persons parked on-street north of Franklin Boulevard

¹⁰ Average Permit Sales is 170. Persons parked in Event Parking District = 170 * 3.35 (persons per vehicle) = 570

¹¹ Student Ticket number is a proxy for pedestrian volume; average number of student tickets sold is 1,810.

After comparison of the values presented in Figure xx, CPW remains confident that the revised methodology used during Phase II during the 2012 season is within a confident level of accuracy.

Available Parking Spaces

The number of parking spaces available approximately one hour prior to the start of a Level 4 event at the Matthew Knight Arena is recommended by the AIMA to be 2,085.¹² The University has supplemented available parking in University Lots with a number of agreements in private parking lots.

For the purpose of this report, an inventory of all University available parking spaces was done on February 2, 2012, which indicated that 1,125 parking spaces available at 5:30pm. This number can be used as a proxy for how many spaces are available in University lots one hour prior to the start of Level 4 events. (see **Appendix V**, Available Parking Space Inventory)

Table 5 indicates the required number of available parking spaces, the available spaces on campus and the number of leased spaces available for Matthew Knight Arena attendees.

Table 5: Available Parking for Matthew Knight Arena

Parking Requirements	
C-2 Required Vehicle Parking Spaces	2,780
C-2 Required Vehicle Parking Spaces after 25% reduction	2,085
Provided Off-Street Parking Spaces	
On-Site or Adjacent to Site (Underground Garage, Surface Parking)	479
Available On-Campus Automobile Spaces One Hour before Event	1,125
Off-Site Lease Agreements	
1825 Garden Avenue (Chambers Management Corp.)	73
1976 Garden Avenue (Chambers Management Corp.)	32
1891 Garden Avenue (Chambers Management Corp.)	20
1933 Franklin Boulevard (Myrmo & Sons Inc.)	85
1600 Millrace Drive (Riverfront Research Park; Barney McCabe)	171
2123 Franklin Boulevard (InnCline Property Mgmt.)	75
Total Off-Site Lease Agreements	456
TOTAL	2,516
AIMA REQUIREMENT - LEVEL 3A/4	2085
Surplus	431

Source: CPW Monitoring 2012, 2011, and TDM.

¹² TDM p.11

As indicated in **Table 5**, data indicates that the number of off-street available parking spaces exceeds the required 2,085 spaces. The University provides 2,516 spaces one hour before the start of an Arena event – a surplus of 431 spaces. Last year, in Phase I, 201 surplus spaces were recorded.¹³

Transit

EmX Service

Transit service was not as well-utilized by Arena event-goers as last year. Transit ridership on EmX dropped by about 60% from last year’s average volume. Lane Transit District, as a provision of the Arena Impact Monitoring Agreement, provides increased service for expected high-attendance events. Of the four events studied for this report, LTD added EmX busses beyond their normal service for two events: One extra bus was added to the schedule for the Men’s Basketball v. University of Washington game on February 9th, and two extra busses were added for the Brad Paisley Concert on February 10th. This added bus allowed visitors to ride the EmX service from Eugene Station to Springfield Station beyond its normal hours, which typically conclude at midnight on Friday evenings.

Arena Shuttle Service

Shuttle service was not as well-utilized by Arena event-goers as last year. First Student shuttles saw a 50% drop in ridership from the 2011 Estimated Mode Split. A direct shuttle ride cost riders \$4 each. Riders began leaving Springfield Station, Autzen Stadium, and Downtown Eugene 1.5 hours prior to event start time and every 15 minutes thereafter, to arrive at the Matthew Knight Arena. The origin of event-goers who used the Arena Shuttle during 2012 monitored events is presented in **Table 6**.

Table 6: Origin of First Student Shuttle Ridership

	Sunday, 29 Jan 3pm MENS BBAL vs. OSU		Thursday, 9 Feb 8pm MENS BBAL vs. UW		Friday, 10 Feb 7:30pm BRAD PAISLEY CONCERT	
	Number	% of Riders	Number	% of Riders	Number	% of Riders
Springfield Station	203	36%	134	37%	158	37%
Autzen Stadium	287	51%	167	46%	189	44%
Downtown Eugene	76	13%	59	16%	79	19%

Source: FirstStudent Shuttle Service

(See **Appendix II**, First Student Shuttle Numbers)

After exploring why use of transit services to reach the Arena declined this year, little causality could be attributed to this shift in attendee behavior. LTD service did not change between this

¹³ Community Planning Workshop, “Matthew Knight Arena Monitoring Report,” August 2011.

year and last, nor did the price of fare. The drop in transit ridership could be the result of the demographic difference in attendees, the perceived inconvenience of transit service, or perhaps evidence that Arena event attendees have “found” habitual parking opportunities beyond the study area.

Bicycles

Racks

Bicycle racks on all sides of the Arena were rarely used by cyclists. Bicycles were locked up on both the East and West bicycle parking locations for all four of the events, though some bikes present prior to the Arena event left during the event, indicating that the riders were not using the MKA racks to attend the event.

Low bicycle arrival counts could be a result of inhospitable weather for the events monitored (temperatures hovering between 45-50 degrees, often with precipitation or heavy cloud-cover), and very well could have been a result of other covered and uncovered bicycle parking facilities beyond those provided at the entrances of the Matthew Knight Arena.

Non-conforming Spaces

Less than five bicycles were observed occupying non-conforming parking opportunities around the Arena during monitored events. Occasionally, bicycles were parked at parking meters near the Jaqua Center or opposite the East entrance to the MKA on Villard Street.

Valet Parking

In observing bicycle parking for the four aforementioned events, Valet Bike Parking was underutilized. Many of the events lacked a staff person to provide Bike Valet service.

Pedestrians

Pedestrian arrivals were common to Matthew Knight Arena events, representing an average of 19% of attendees. CPW used the remainder of attendance after all other modes of travel were accounted for as a proxy for pedestrian attendees. To assure the accuracy of this method, CPW compared the volume of pedestrians attending an Arena event to the number of student tickets sold. This comparison parallels the method used in Phase I, using student tickets as a proxy for pedestrian attendance to Arena events. **Table 7** shows a comparison between pedestrian attendance and student tickets sold for the two Men’s Basketball games monitored for this report.

Table 7: Pedestrian Attendance to Student Ticket Sales

DATE	EVENT	ATTENDANCE	ESTIMATED PEDESTRIANS	STUDENT TICKETS
Sunday, 29 Jan 3pm	MENS BBAL v. OSU Level 4	10,969	1,935	1,836
Thursday, 9 Feb 8pm	MENS BBAL v. UW Level 4	9,035	1,905	1,854

From last year’s estimated mode split, pedestrians accounted for a 3% increase in mode share. A 3% increase represents, on average, an increase of about 110 individuals walking to the Arena instead of using any other mode to attend Arena events.

INTERSECTIONS

Pre- and post- event traffic trends were observed at each of the seven intersections. Traffic on Agate Street and 15th Street resulted in congestion as event-goers tried to find parking before events and as attendees exited parking areas after Arena events. Queuing occurred at the intersections closest to the Arena prior to events, much of which had to do with traffic arriving at the Arena intending to find parking. Despite the aid of typically at least four flaggers, intersections often became congested for a period of time both before and after events. In some cases CPW monitors observed that additional flaggers caused additional delays in attempts to direct motorists to available parking opportunities. Monitors identified general traffic trends and challenges at given intersections, as noted in **Table 8**.

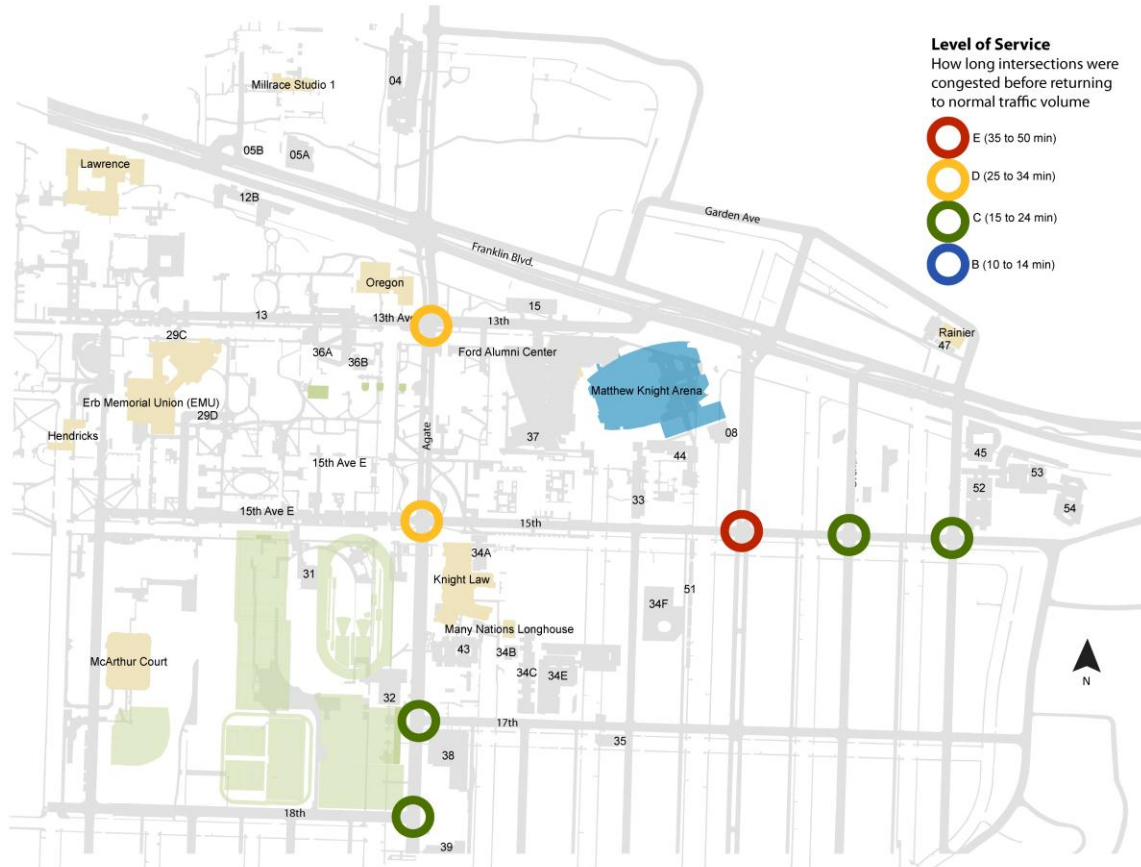
Table 8: Intersection Observations by Monitors

INTERSECTION	FLAGGER BEHAVIOR	SPECIFIC AREAS OF CONGESTION IN INTERSECTION	NOTABLE DRIVER BEHAVIORS
13th & Agate	Had to explain road closure/re-routing to many drivers, generally moved pedestrians effectively.	Prioritized turning from Agate into 13th (East) from southbound lane backed up northbound traffic significantly.	Driver confusion and honking post-event.
15th & Agate	Generally positive, strong communication amongst all that are typically present (5). Pedestrian flagger sometimes had issues keeping pedestrians moving.	Turning North onto Agate from 15th, Northbound travel on Agate gets heavily congested both before and after event.	Blocked intersection and driver confusion Pre-event.
15th & Villard	Offering parking directions, moving pedestrians across intersection.	Traveling south on Villard through intersection.	Unsure about stop sign (stopping without being prompted when no flagger is present), Confusion about where to park.
15th & Orchard	Gave parking directions pre-event, minimal need to direct traffic.	Turning north onto Orchard post-event.	Noticeable driver confusion pre-event, often blocking intersection.
15th & Walnut	No flagger.	Pre-event had minimal traffic. Traffic mostly turning north onto Walnut post-event.	Notable disregard for stop signs, frequent speeding and U-turning.
17th & Agate	No intersection flagger, but multiple parking flaggers on 17th directing motorists to parking lots.	Turning primarily North (but also South) onto Agate backed up post-event.	Frequent driver confusion as to location of parking lot 38, resulting in frequent U-turns.
18th & Agate	No flagger.	Concerns of pedestrian crossing on 18th (no crosswalk) preventing turns from Agate (northbound and southbound) onto 18th.	Some U-turns due to northbound traffic post-event and driver confusion.

All of the intersections monitored are four-way stops once the Event Parking District is activated and flaggers begin controlling traffic. Pre-event traffic tended to congest at the intersections immediately adjacent to the Arena. Typically, these intersections were staffed with four flaggers. To better define the levels of congestion present at each intersection, average congestion periods were measured by CPW monitors during Level 4 Men’s Basketball events. These averages reflect how long intersections were congested before returning to normal or “clear” traffic volume. As mentioned before, our methodology measures intersection congestion as having more than 5 cars queued in any direction. By averaging the time it took for

each intersection to clear, **Figure 4** provides a more detailed summary of congestion areas around the Matthew Knight Arena

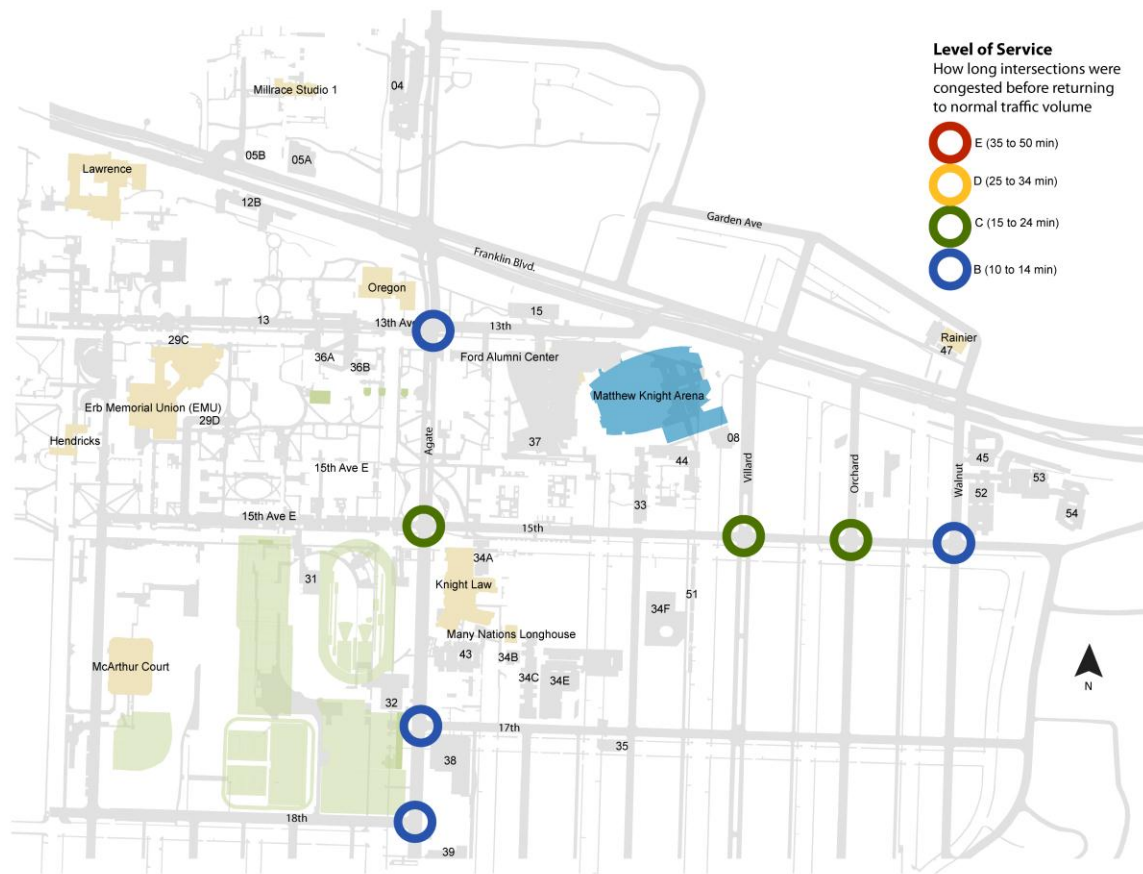
Figure 4: Intersections around Matthew Knight Arena, Pre-Event



As noted in **Figure 4**, intersections closest to the Arena remained congested for at least an average of 35 minutes prior to monitored Level 4 athletic events. Prior to monitored events, intersections farther away from the Arena were cleared in an average of 25 minutes.

Intersection activity observed by monitors at the conclusion of events cleared more quickly. Traffic flow out of parking lots (both private and University Lots) typically was directed north towards Franklin Boulevard. Once motorists were able to navigate in to their event parking spot they seemed to understand which direction to move upon exiting the event, despite all traffic leaving within a smaller time-window.

Figure 5: Intersections around the Matthew Knight Arena, Post-Event



Only minor concerns were expressed by monitors regarding driver behavior post-event. Typically driver frustration arose out of queuing times at intersections, mostly in northbound and eastbound traffic lanes. This frustration, at times, resulted in cars rolling through stop signs and or pulling U-turns in attempts to take a less-popular route back to major roadways.

Intersections on 15th Street experienced more traffic than those intersections farther from the Arena. Notably, those intersections closest to larger parking lots did not experience significant traffic delays, such as 17th Street and Agate Street, or 15th Street and Walnut Street. No intersection monitored after the conclusion of an Arena athletic event, delayed traffic for more than an average of 24 minutes.

KEY FINDINGS

Overall, the Matthew Knight Arena area was busy with activity during the events monitored for Phase II. In reflecting on the observations made by CPW monitors regarding both parking and intersections, the following take-away nuggets provide a few distilled ideas.

- **Significant parking is occurring north of Franklin Boulevard.** Many MKA attendees park in private parking lots or find on-street opportunities to park on Garden Ave.
- **Lots closest to the Arena are used most.** Despite free parking to the South and West of MKA, many patrons are parking in close proximity of the Arena.
- **Many attendees continue to use parking areas on or near campus to the West of MKA.** Many attendees were observed walking through campus, parking on 13th and 15th Streets, and/or parking close to MacDonald Court. This may indicate athletic fans continue to use parking spaces they have used in years past, preferring to walk more than ¼ mile to MKA.
- **Covered bicycle parking is preferred by those arriving by bicycle to MKA.** Bicycles were more commonly found locked to covered parking facilities around the Arena.
- **Valet Bicycle Parking is often underutilized.** Without consistent staff present and/or covered areas for bicycle parking, the valet bike area was not well-used at events monitored in Phase II. MKA Facilities may consider a smaller valet parking area to the Southwest of the Arena, where covered parking can be assured.
- **Some bicycles observed were likely owned by MKA employees.** Many bikes counted for this project were present more than 1 hour prior to event start time and remained locked in the same area well after the conclusion of events. These bicycles are likely owned by employees of MKA or by students living in adjacent dorms.
- **Continue to think about the pedestrian safety when crossing Franklin:** With the high volume of automobiles parking north of Franklin Boulevard to attend Arena events, crossing Franklin Boulevard presents a challenge to pedestrians.
- **Inability to locate parking resulted in driver confusion pre-event:** Many drivers were confused as to where to find available parking prior to the start of Arena events; this confusion often resulted in behavior such as U-turns, honking, and may have contributed to auto congestion.
- **Signage could improve many congestion/parking issues.** Many of the questions asked of flaggers could have been answered by signs directing motorists to available parking or exit routes away from the Arena to major roadways.
- **Driver frustration stemmed from being unable to navigate out of parking areas after Arena events to reach main roadways.** After events at the Arena concluded, many motorists were unable to find their way back to major roadways. This may be connected with confusion pre-event, as event-goers may have been eager to get into the Arena and not as diligent to remember how they got to their parking spot.
- **Flaggers were asked for directions and traffic alternatives, but often were unfamiliar with the area or available alternate routes.** Flaggers were the main source of information for motorists arriving and leaving the Arena in automobiles; it may be

beneficial for flaggers to be briefed on local route alternatives to facilitate traffic movement.

- **Encourage EmX usage:** The most significant change in mode share from 2011 is ridership on public transit to reach the Arena. Encouraging attendees to ride EmX could alleviate some traffic congestion both before and after events.
- **Level 1 events presented nearly no impact to intersection functionality.**

IDEAS FOR NEXT YEAR'S MONITORING METHODS

After considering the assumptions built into Phase II monitoring of the Matthew Knight Arena and the challenges they presented, CPW is now able to hone in on specific details that may be pertinent in developing a method and strategy for Phase III. Despite every attempt to secure accurate counts of cars prior to the Arena events monitored, it seems that attendees' behavior around the Arena continues to evolve. Many spectators arrived at the Arena earlier and had dinner, preferred to walk from a greater distance than anticipated, or discovered a coveted parking space to use habitually. These adaptations are a positive sign towards achieving the lowest traffic impact possible to the neighborhood surrounding the Arena, however it proves difficult to develop a consistent methodology to achieve a mode split for Arena event-goers.

Knowing this, CPW has developed a number of ideas for Phase III of Matthew Knight Arena Monitoring:

1. **Survey about Modal Choice:** Instead of counting cars in parking lots to determine the mode split, we recommend conducting a simple intercept survey of Arena attendees. By asking attendees at the entry ways, concession stand lines, interior entry ways to seating, or elsewhere about how they got to the Arena, a mode split could be assembled with statistical accuracy.
2. **Count cars entering the Arena Parking District:** Intersection monitors should look specifically at number of cars entering the Arena Parking District to provide the Fairmount Neighbors with a more accurate count of non-residential vehicles entering and attempting to park in the Arena Parking District.
3. **Gather Accurate Counts of Cars within the Arena Parking District:** Monitoring should assure an accurate count of cars parked in the Arena Parking district, as an extra measure beyond the use of the License Plate Recognition software. Counting cars should note specifically the number of cars parked with:
 - J Permits : Residential stickers affixed to the rear bumper of cars that "live" in the Fairmount Neighborhood.
 - Guest Passes: Passes procured by Fairmount residents for guests who may wish to park on the street during a time when the Arena Parking District is in effect.
 - Arena Parking District Pass: Passes purchased or received through the University of Oregon to park while the Arena Parking District is in effect.



APPENDICES

Appendix A: EmX Ridership

Special Event	Stations/Time Spans Surveyed	Ons	Offs	Total	People
UO Men's B-Ball Game Sun., 1/29/12 @ 3:30 p.m.	Agate & Walnut Stations between 1:30 p.m. & 7:30 p.m.	342	387	729	365
1/22 & 2/5 avg.	" "	183	187	370	185

180

Special Event	Stations/Time Spans Surveyed	Ons	Offs	Total	People
UO Men's B-Ball Game Thurs., 2/9/12 @ 8:00 p.m.	Agate & Walnut Stations between 6:00 p.m. & 11:00 p.m.	364	413	777	389
2/6 - 2/8 avg.	" "	231	198	429	215

174

Special Event	Stations/Time Spans Surveyed	Ons	Offs	Total	People
Brad Paisley Concert Fri., 2/10/12 @ 8:00 p.m.	Agate & Walnut Stations between 6:00 p.m. & 11:30 p.m.	401	472	873	437
2/6 - 2/8 avg.	" "	231	198	429	215

222

Special Event	Stations/Time Spans Surveyed	Ons	Offs	Total	People
UO Women's B-Ball Game Thurs., 2/16/12 @ 7:00 p.m.	Agate & Walnut Stations between 5:00 p.m. & 11:00 p.m.			0	0
2/13 - 2/15 avg.	" "			0	0

Legend

Count includes EmX & LTD shuttle buses serving event at stops near Matt Arena.

Count includes regular EmX service serving these two stops.

Appendix B: First Student Arena Shuttle Ridership

BASKETBALL	JAN. 29TH									OREGON STATE	
	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	TOTAL	
SPRINGFIELD			17	46	46	42	47	5		203	
AUTZEN			9	29	23	87	124	15		287	
DOWNTOWN					9	10	29	21	7	76	
										566	

BASKETBALL	FEB. 9TH						WASHINGTON				
	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	TOTAL	
SPRINGFIELD			2	34	27	65	6			134	
AUTZEN			25	21	44	34	29	12	2	167	
DOWNTOWN					25	18	10	6		59	
										360	

BASKETBALL	FEB. 10TH									BRAD PAISLEY			
	17:00	17:30	18:00	18:15	18:30	18:45	19:00	19:15	19:30	19:45	20:00	TOTAL	
SPRINGFIELD			28	12	21	42	26	10	19			158	
AUTZEN	1		39	27	38	36	26	10	11	2		189	
DOWNTOWN				12	18	18	18	13				79	
												426	

Appendix C: Private Parking Lots Sold

Business Name	Parking Policy	Pay/Not Pay	Can I park here if I'm going to Arena Event?	29-Jan			9-Feb			10-Feb			16-Feb		
				PRE	DURING	DELTA	PRE	DURING	DELTA	PRE	DURING	DELTA	PRE	DURING	DELTA
Evergreen	Only if eat at the restaurant	Pay	Yes if eat at Evergreen.	4	6	2	16	19	3	17	16	-1	13	11	-2
Campus Chicken Shack	Pay \$10 or eat there and park free	Pay	Yes	38	40	2	36	34	-2	37	38	1	9	9	0
New Oregon Motel	Parking for motel guests only.	NA	No	23	26	3	28	27	-1	30	28	-2	15	17	2
The Bridge	Parking for motel guests only.	NA	No												
Green Tree Inn	Scheduled parking (if event on week night or weekend will typically allow \$10 fee to park. However, if daytime event lot is fully utilized by staff.	Pay	Yes, depending on event time.	40	105	65	23	42	19	98	96	-2	18	4	-14
Oregon Research Institute	Pay \$10 or eat there and park free	Pay	Yes	19	32	13	35	33	-2	36	32	-4	11	16	5
Mekalas	No event parking allowed (recommended to park on Garden	NA	No												
Track Town Pizza	\$10 parking and give permit for car	Pay	Yes	35	35	0	34	38	4	39	40	1	5	7	2
University Inn & Suites	No strict policy. Sometimes there is a fee sometimes there is not (depends on who is working). Mentioned something about 30 day passes.	Variable	Yes	15	16	1	17	22	5	Not sold.			3	8	5
Days inn	\$10 to park	Pay	Yes	24	41	17	35	37	2	48	48	0	23	23	0
House of Chen	\$10 to park (have parking people and lot is first come, first served)	Pay	Yes	51	57	6	50	57	7	56	59	3	9	7	-2
Wendy's	\$10 to park or eat there and \$5 to park	Pay	Yes	31	35	4	28	18	-10	35	23	-12	29	5	-24
Empire Buffet	If a men's night \$15 donation other events \$10 donation (all proceeds go to Half ton(not sure if I got the name right) Rotary). Assigned spots.	Pay	Yes	11	7	-4	2	8	6	4	5	1	3	5	2
Euro-Asia	\$10 to park and get 10% off coupon for eating at the restaurant.	Pay	Yes	151	172	21	158	170	12	250	267	17	116	86	-30
Boulevard Grill	Sell parking spots for nonguests \$10.	Pay	Yes												
Holiday Inn Express															
TOTAL						130			43			2			-56

Appendix D: University Lot Usage

LOT	# OF SPACES	SPACES USED	PERCENT FULL
04	150	72	48%
05A	43	11	25%
05B	4	2	58%
08	16	15	92%
12B	37	17	47%
13	40	22	56%
15	141	119	84%
29C	4	2	42%
29D	39	25	65%
31	22	7	33%
32	30	16	54%
33	54	52	97%
34A	15	5	31%
34B	2	0	0%
34C	44	9	21%
34E	192	102	53%
34F	79	76	96%
35	12	7	61%
36A	9	7	74%
36B	20	13	67%
37	52	42	80%
38	86	35	40%
39	52	22	43%
43	62	33	54%
44	53	46	86%
45	32	27	83%
51	54	54	100%
52	62	59	95%
53	81	67	82%
54	52	36	69%
P1			
P2	375	347	93%
P3			

Appendix E: Available Parking Spaces 1 Hour Prior to Arena Event

LOT NUMBER	Lot Type	Existing Spaces	Unavailable (Service Spaces)	Unavailable (24 minutes Zones)	ADA Spaces	Total Spaces	Occupied Spaces	Available Spaces
02	Faculty/staff	81	3	0	0	78	32	46
03A	Student/Faculty/Staff	23	0	4	1	18	10	8
03B	Student/Faculty/Staff	38	0	0	1	37	22	15
05A	Student/Faculty/Staff	42	0	0	0	42	21	21
05B	Student/Faculty/Staff	3	0	0	0	3	2	1
06A	Faculty/staff	100	0	0	0	100	78	22
06B	Faculty/staff	6	0	0	0	6	2	4
07A	Special Permits	6	2	1	0	3	1	2
07B	Special Permits	13	0	1	1	11	5	6
09	Faculty/staff	7	0	1	1	5	1	4
10	Special Permits	9	7	0	1	1	0	1
11	Special Permits	11	1	0	2	8	closed	0
12A	Faculty/staff	27	2	0	1	24	13	11
12B	Faculty/staff	35	7	0	0	28	5	23
13	Special Permits	40	8	3	0	29		29
14	Special Permits	7	4	0	0	3	0	3
16A	Faculty/staff	207	4	0	2	201	124	77
16B	Student	16	0	0	0	16	12	4
17	Faculty/staff/vistor	85	2	0	0	83	63	20
18	Stuent/faculty/staff	99	0	0	0	99	66	33
19	Reserved Client	26	1	2	3	20	19	1
20	Faculty/staff	30	13	0	3	14	5	9
21	Faculty/staff	4	1	0	3	0	3	0
22	Faculty/staff	18	1	0	2	15	12	3
23	Faculty/staff	40	2	2	0	36	20	16
25	Special Permits	14	1	2	1	10	5	5
26	Special Permits	15	1	0	0	14	8	6
27	Special Permits	4	1	0	1	2	0	2
28	Special Permits	12	1	0	0	11	3	8
29A	Vistor	49	6	0	2	41	36	5
29B	Special Permits	5	3	0	0	2	1	1
29C	Special Permits	4	0	0	0	4	2	2
29D	Special Permits	39	1	0	1	37	12	25
30	Faculty/staff	67	1	0	1	65	22	43
31	Student/Faculty/Staff	23	0	0	1	22	13	9
32	Student/Faculty/Staff	30	0	0	2	28	19	9
33	Student/Faculty/Staff	43	0	0	2	41	41	0
34A	Special Permits	15	2	0	4	9	3	6
34B	Special Permits	2	0	0	2	0	0	0
34C	Student/Faculty/Staff	44	0	2	0	42	29	13
34E	Student/Faculty/Staff	274	0	0	4	270	195	75
34F	Student/Faculty/Staff	80	0	0	0	80	80	0
35	Student/Faculty/Staff	12	0	0	0	12	11	1
36A	Loading Zone	9	0	0	0	9	6	3
36B	Special Permits	20	1	0	2	17	11	6
38	Faculty/staff	71	1	0	4	66	40	26
39	Student/Faculty/Staff	52	0	0	2	50	22	28
40	Faculty/staff	127	1	0	3	123	57	66
41	Special Permits	5	0	0	0	5	1	4
42	Student/Faculty/Staff	84	0	0	1	83	61	22
43	Faculty/staff	62	5	0	2	55	31	24
44	Special Permits	53	0	0	1	52	38	14
45	Jaqua Center Permit	32	0	0	0	32	4	28
47	Faculty/staff	28	9	0	2	17	10	7
51	Student/Faculty/Staff	54	0	0	3	51	11	40
52	Student/Faculty/Staff	64	0	0	6	58	13	45
53	Student/Faculty/Staff	78	0	0	0	78	11	67
54	Student/Faculty/Staff	46	0	0	0	46	0	46
13th Ave	On-Street	24	0	0	0	24	14	10
15th Ave	On-Street	145	17	6	0	122	95	27
Univer St	On-Street	236	0	0	0	236	143	93
TOTAL EXISTING						2694	TOTAL AVAILABLE	1125

Appendix F: Parking Citations

Citations issued within the Event Parking District for each of the events

	Sunday, 29 Jan 3pm MENS BBAL vs. OSU Level 4	Thursday, 9 Feb 8pm MENS BBAL vs. UW Level 4	Friday, 10 Feb 7:30pm BRAD PAISLEY CONCERT Level 4	Thursday, 16 Feb 7pm WOMENS BBAL vs. CAL Level 1
Arena Parking District	50	32	48	n/a
Garden Ave	1	2	5	37
TOTAL	51	34	53	37

Source: City of Eugene Parking Services