



PROJECT HOME RUN

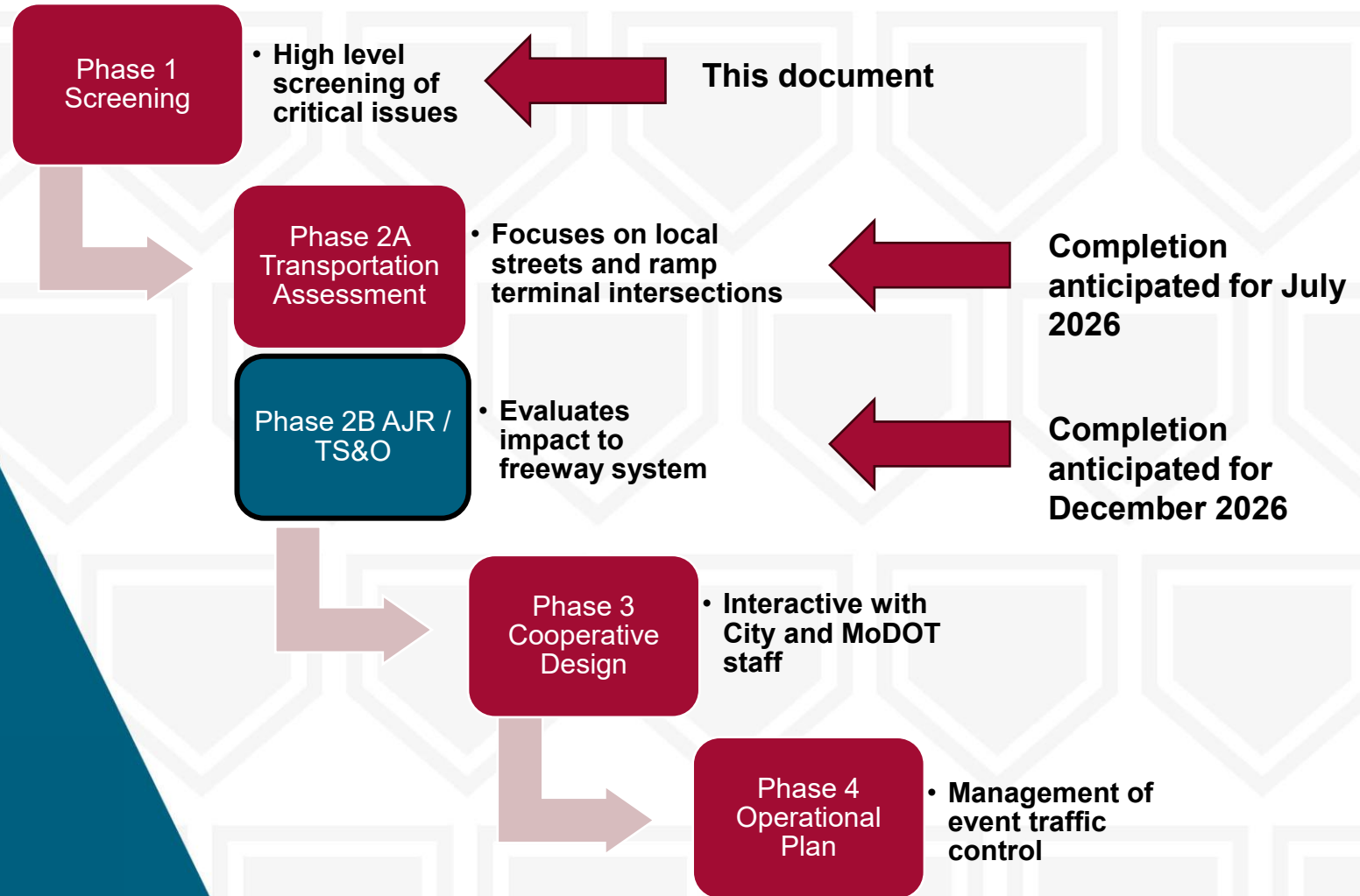
KC Royals Ballpark

**Crown Center Location
Parking & Transportation
Screening**

Kimley»Horn



Transportation Evaluation Process



Introduction and Overview

- Planning-level estimates of vehicle trips to Crown Center site, parking demand, and impacts to roadway network
- Analysis for all scenarios conducted; bolded scenarios summarized

Game Day Scenarios	Attendance Scenarios	% of Vehicles Parking in Hour Before/After Event	Roadway Network Capacity
Weeknight	34,000	80% in hour	• Major highways in/out • Ramps • Local streets • Existing access vs. proposed improvements
Weekday Day	(85% Capacity, or seated capacity)	<i>(assumes some attendees would arrive early for entertainment in downtown)</i>	
Weekend Day			

SUMMARY

The regional freeway network largely has the capacity to handle heavy event traffic.

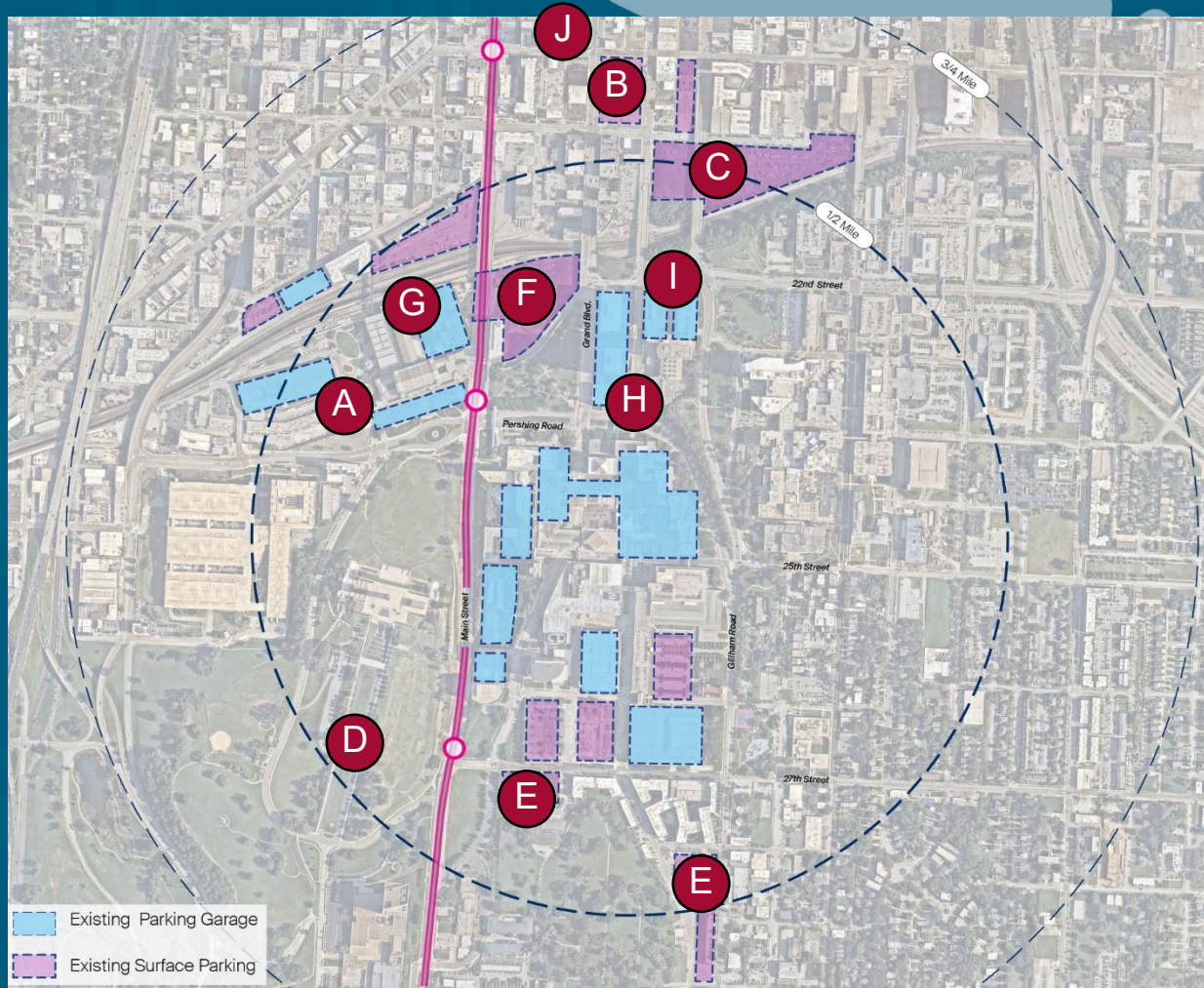
- Most congested segments are on east side of the Loop and northbound I-35
- Significant number of ramps from freeways provide access (15+ on and off)
 - However, local connectivity surrounding the site is challenging, limiting the number of *direct* ramps to/from the site
- Challenging freeway access points: I-35/20th/Pennway, US-71/22nd
- Traffic management strategy should facilitate regional trips departing the freeway network before reaching the Loop (from I-70 east, I-35 south/west, I-29/35 north, US-71 south)
- ***Findings will be confirmed in Phase 2 studies***

Improvements will be needed at specific interchanges. Additional north/south local network capacity may be necessary to facilitate traffic to the site.

- Additional approach lanes and turn lanes at key interchanges
 - FHWA approval required if needing to impact the freeway mainline
- Additional north/south lanes to get vehicles to the site
- ***Findings will be confirmed in Phase 2 studies***

Parking Inventory

	Location	Spaces
A	Union Station (w/ Two-Pershing)	3,000 spaces
B	20 th and Grand	328 spaces
C	Children's Mercy Parking (n/o RR)	1,061 spaces
D	Liberty Memorial / On-Street	320 spaces
E	Crown Center (s/o 27 th)	486 spaces
F	Washington Square Park	720 spaces
H	Hines Garage	1,325 spaces
I	2301 McGee	1,247 spaces
J	Corrigan Station	306 spaces
	On-Street Parking (some > ½ mile walk)	1,033 spaces
Total Offsite Parking		10,038 spaces
Available Onsite Parking		6,000 spaces
Total Available Parking		16,038 spaces
Estimated Demand		9,000 spaces

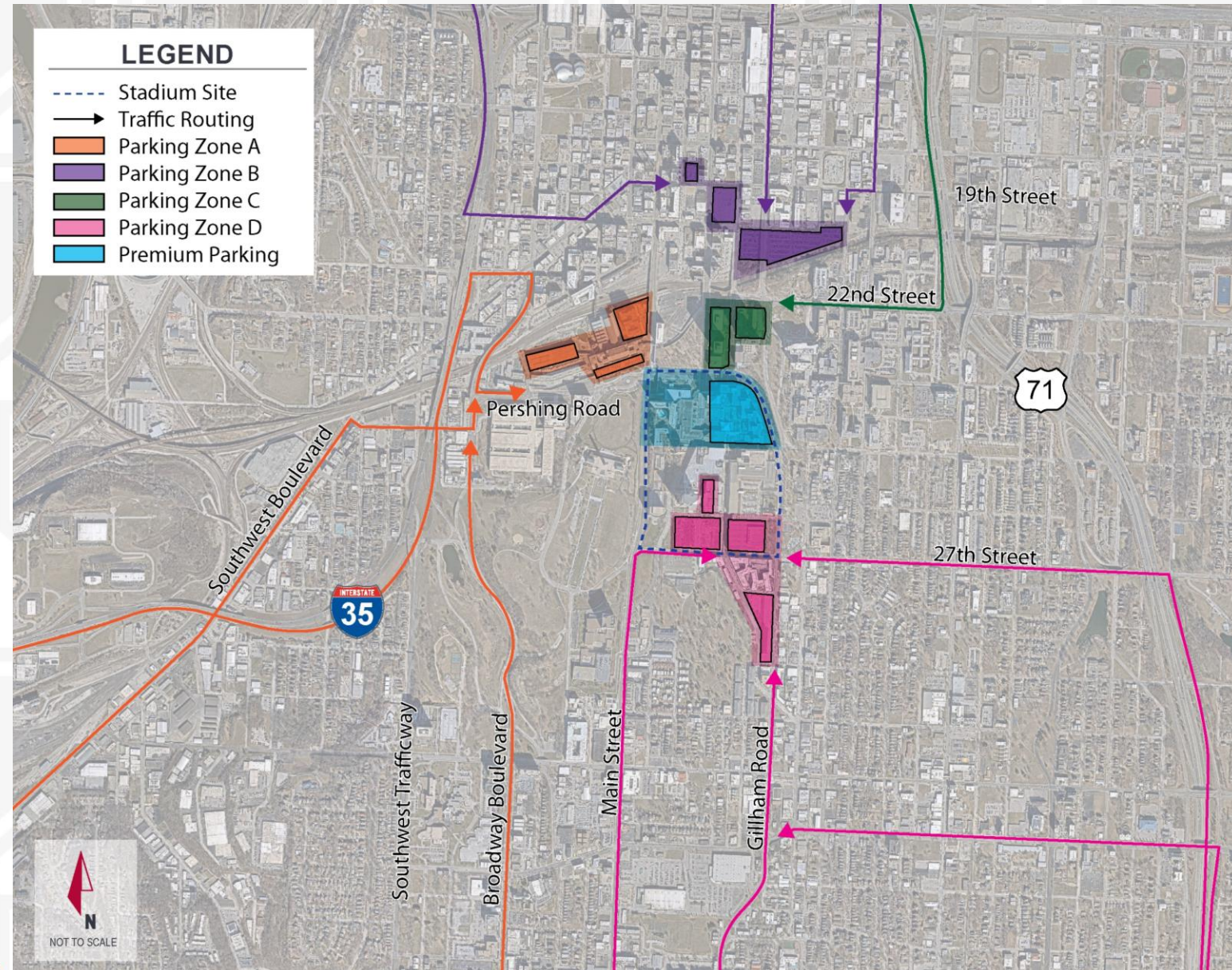


Zoned Parking Example

Aligning Origins to Parking

Zoned Parking Concepts

- Aligns billing address of ticket purchaser with most convenient, direct parking locations
- Minimizes overlaps of traffic
- Used to facilitate separation of traffic and pedestrian movements where possible
- Can be used to manage traffic flow and avoid congested areas
- On-street parking within Crown Center and Crossroads will also provide additional parking opportunities



Traffic & Parking Projections – Stadium

Parking Demand for Stadium Events		
% Capacity	Weekday/night	Weekend
85% (fully seated)	9,000	7,700
100%	10,800	9,300

Parking Supply	
Crown Center	8,219 spaces
Offsite Parking Options	10,038 spaces
Total	18,257 spaces

Mode Assumptions (for seated capacity)	
Streetcar / Bus	8% (2,900 pers)
Bike / Walk	10% (3,400 pers)
Rideshare	15% (5,200 pers)
Charter Bus	0% (100 pers) weekday/night 3% (1,000 pers) weekend
Driving	67% (22,500 pers) weekday/night 64% (21,600 pers) weekend
Total Attendees	34,000 pers

- ➔ 40,000 stadium occupancy
 - ➔ 34,000 seated capacity
- ➔ 2.5 pers/vehicle weeknight occupancy
- ➔ 2.8 pers/vehicle weekend occupancy
- ➔ 3.0 pers/vehicle Rideshare

Traffic Projections – Entire Site

Peak Hour Trip Generation (85% Capacity Game)						
Trip Generator	Weekday Night		Weekend Day		Weekday Day	
	Arrival	Departure	Arrival	Departure	Arrival	Departure
Stadium	8,300	10,800	7,500	9,800	8,300	10,800
“Ballpark District”	200	100	300	200	200	200
<i>Total</i>	<i>8,500</i>	<i>10,900</i>	<i>7,800</i>	<i>10,000</i>	<i>8,500</i>	<i>11,000</i>

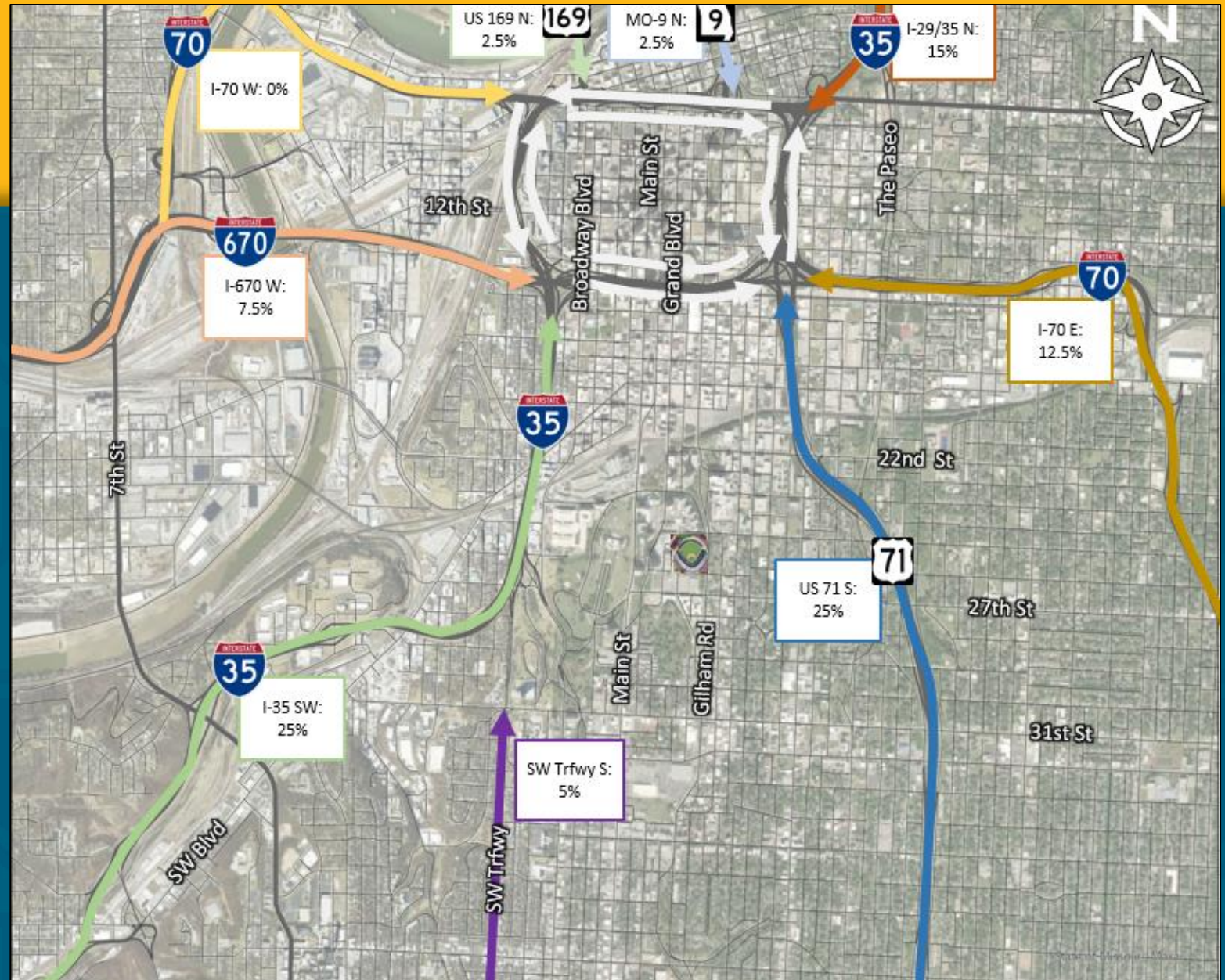
- ➔ Capacity Analysis evaluated the entire site, including trips from both the stadium and the adjacent ballpark district
- ➔ Numbers shown above represent total car trips into and out of site during a given arrival or departure hour

Regional Highway Trip Distribution

We assembled a “typical” distribution of highway routes into the site area based on the location of:

- ➔ Season ticket holders
- ➔ Other / New Season ticket holders

5% of trips were assumed to use the local street network to/from the south (i.e., Main / Gillham / Troost)





Regional Roadway Capacity Analysis

Existing Access (without and with improvements)
34,000 Event Attendance (85% Capacity)
80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips IN

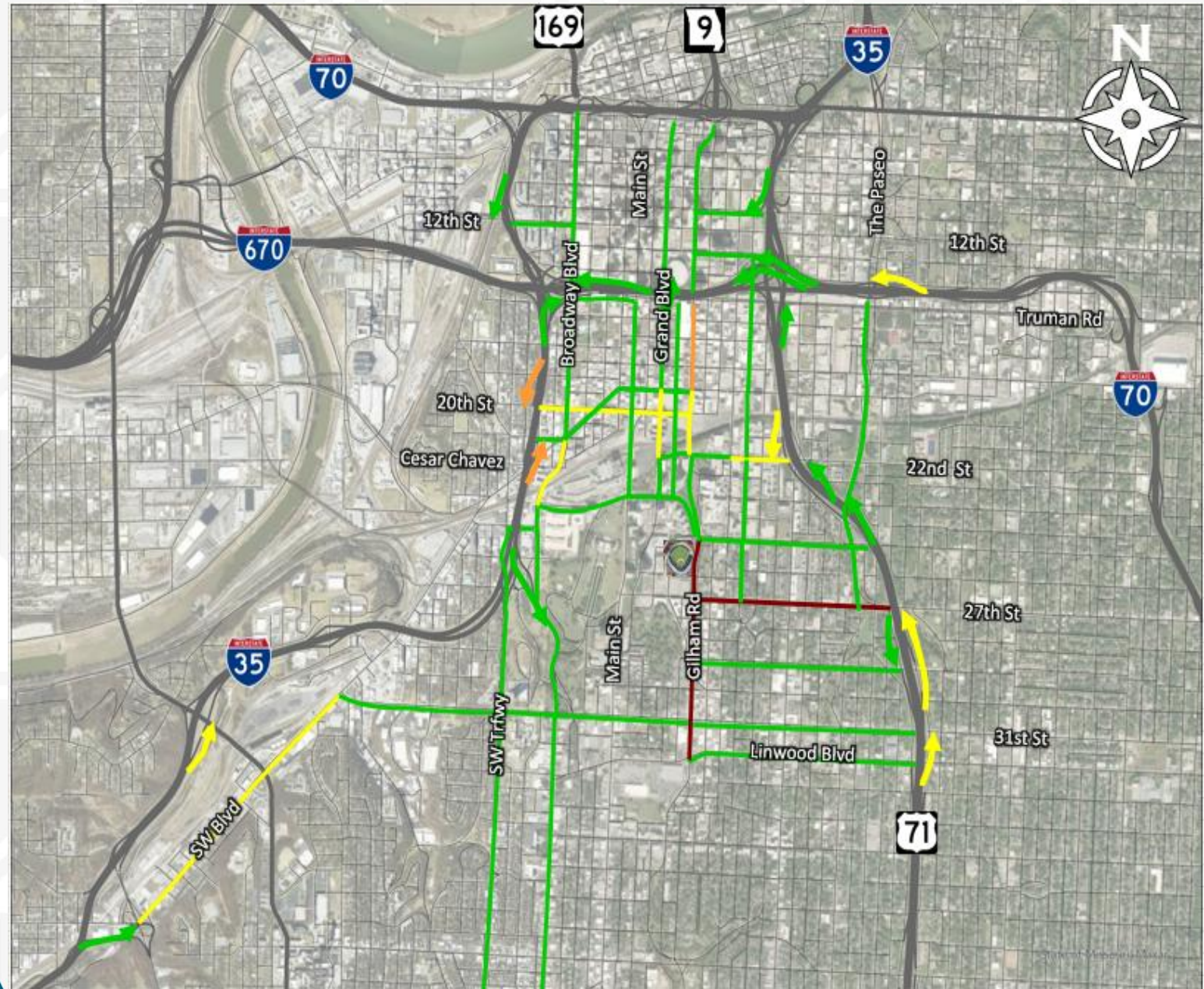
No Improvements
Ramps and Local Roadways
7:00 PM Game Start Time

Weeknight Game: Vehicle Trips In

Roadway Capacity



- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips IN

No Improvements

Ramps and Local Roadways

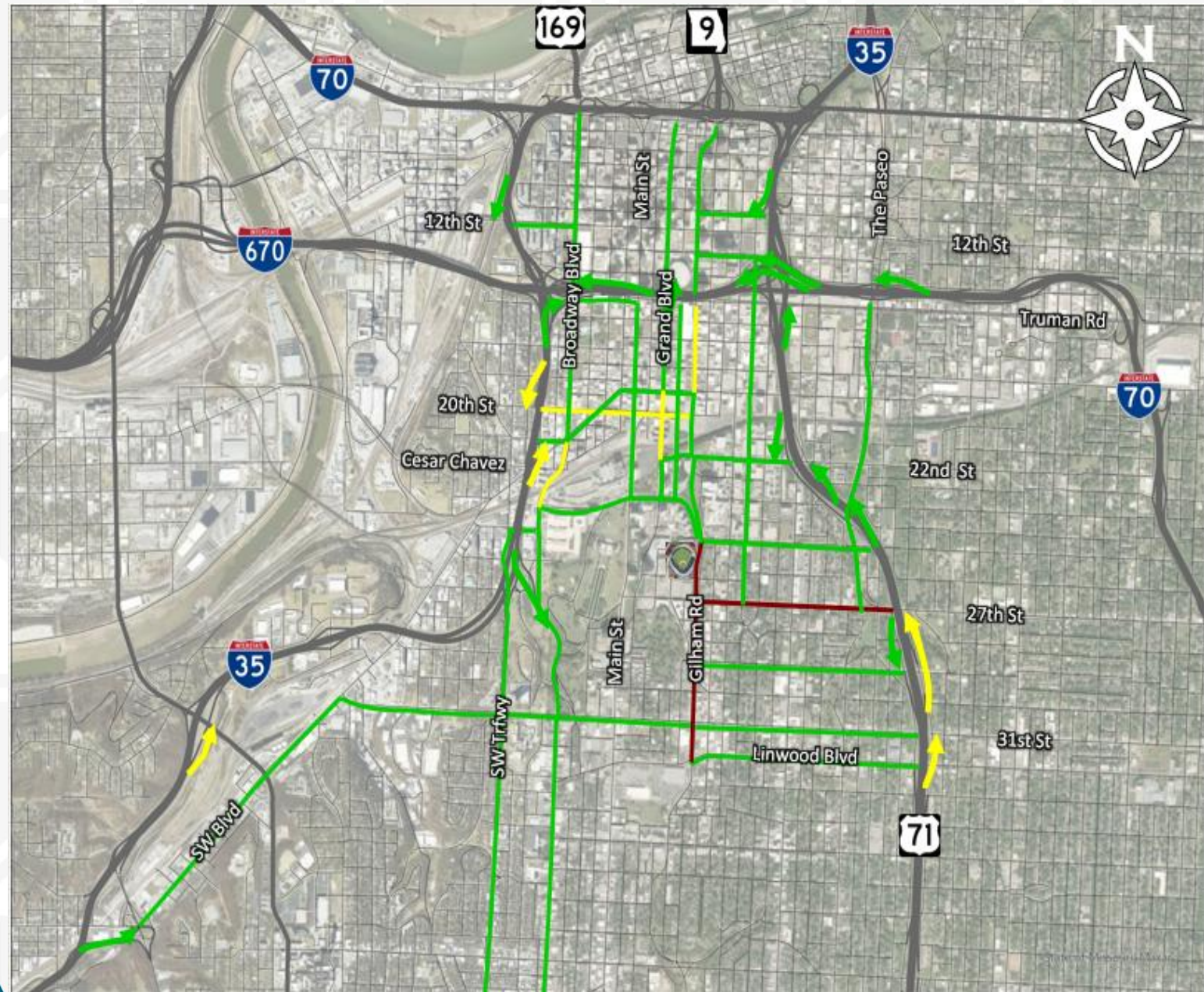
7:30 PM Game Start Time

Weeknight Game: Vehicle Trips In

Roadway Capacity

-  Below Capacity
-  Approaching Capacity
-  At Capacity
-  Above Capacity
-  Significantly Above Capacity

- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips IN

Proposed Improvements

Ramps and Local Roadways

7:00 PM Game Start Time

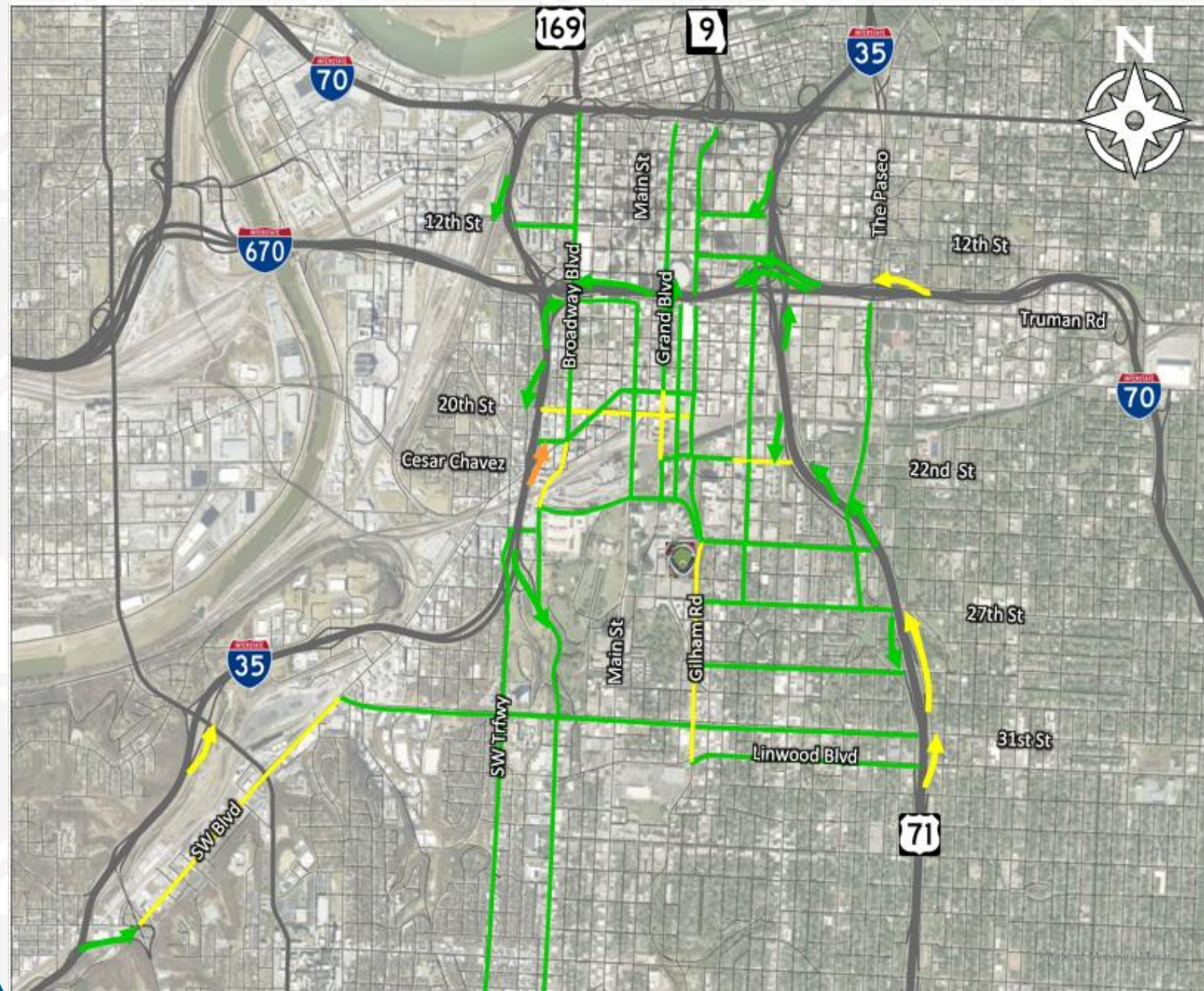
Weeknight Game: Vehicle Trips In

Roadway Capacity

-  Below Capacity
-  Approaching Capacity
-  At Capacity
-  Above Capacity
-  Significantly Above Capacity

With Proposed Improvements

- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips IN

Proposed Improvements

Ramps and Local Roadways

7:30 PM Game Start Time

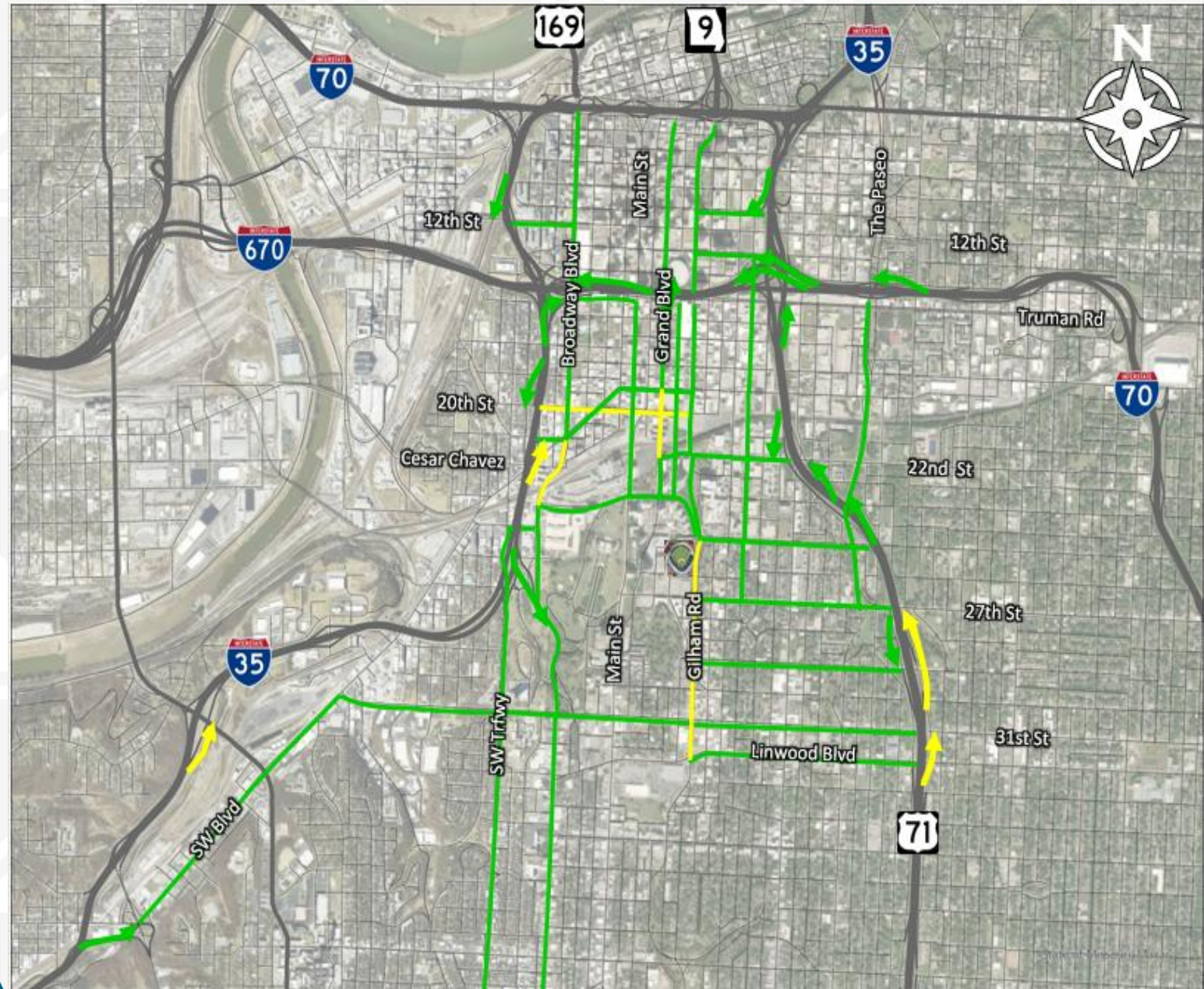
Weeknight Game: Vehicle Trips In

Roadway Capacity

-  Below Capacity
-  Approaching Capacity
-  At Capacity
-  Above Capacity
-  Significantly Above Capacity

With Proposed Improvements

- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



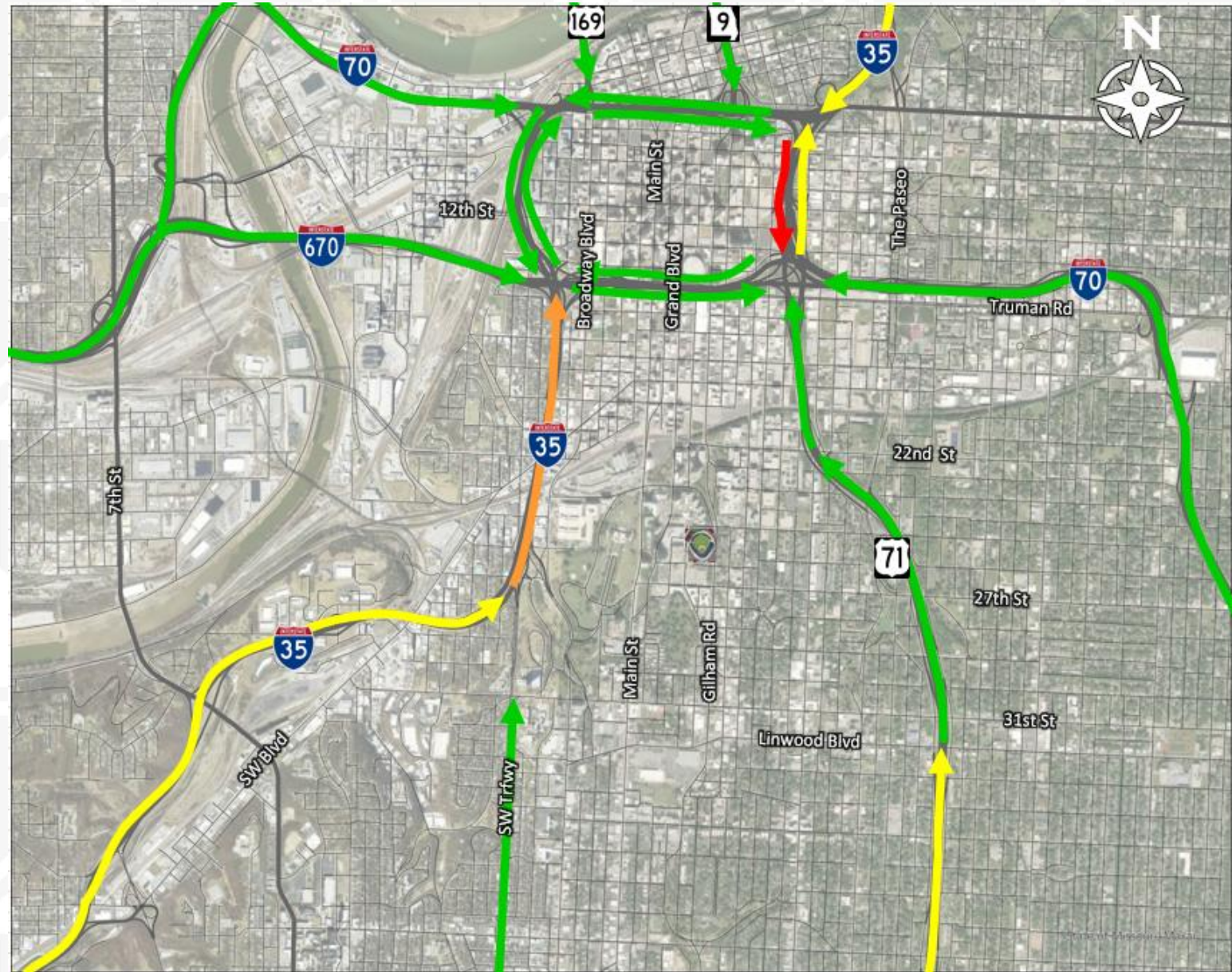
Weeknight Game Trips IN Regional Freeways 7:00 PM Game Start Time

Weeknight Game: Vehicle Trips In

Roadway Capacity

- Below Capacity
- Approaching Capacity
- At Capacity
- Above Capacity
- Significantly Above Capacity

- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips IN Regional Freeways

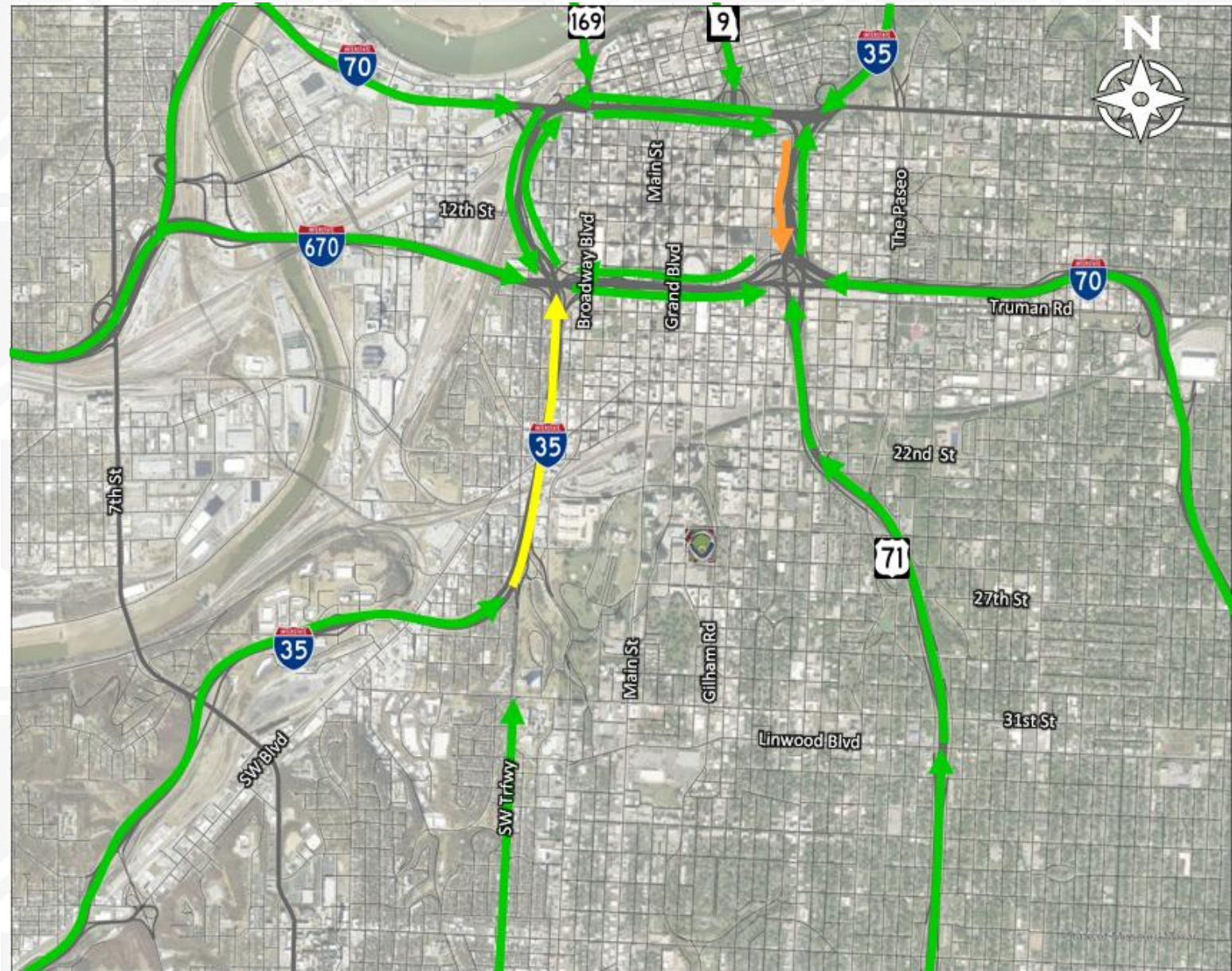
7:30 PM Game Start Time

Weeknight Game: Vehicle Trips In

Roadway Capacity

-  Below Capacity
-  Approaching Capacity
-  At Capacity
-  Above Capacity
-  Significantly Above Capacity

- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips IN

Regional Freeways

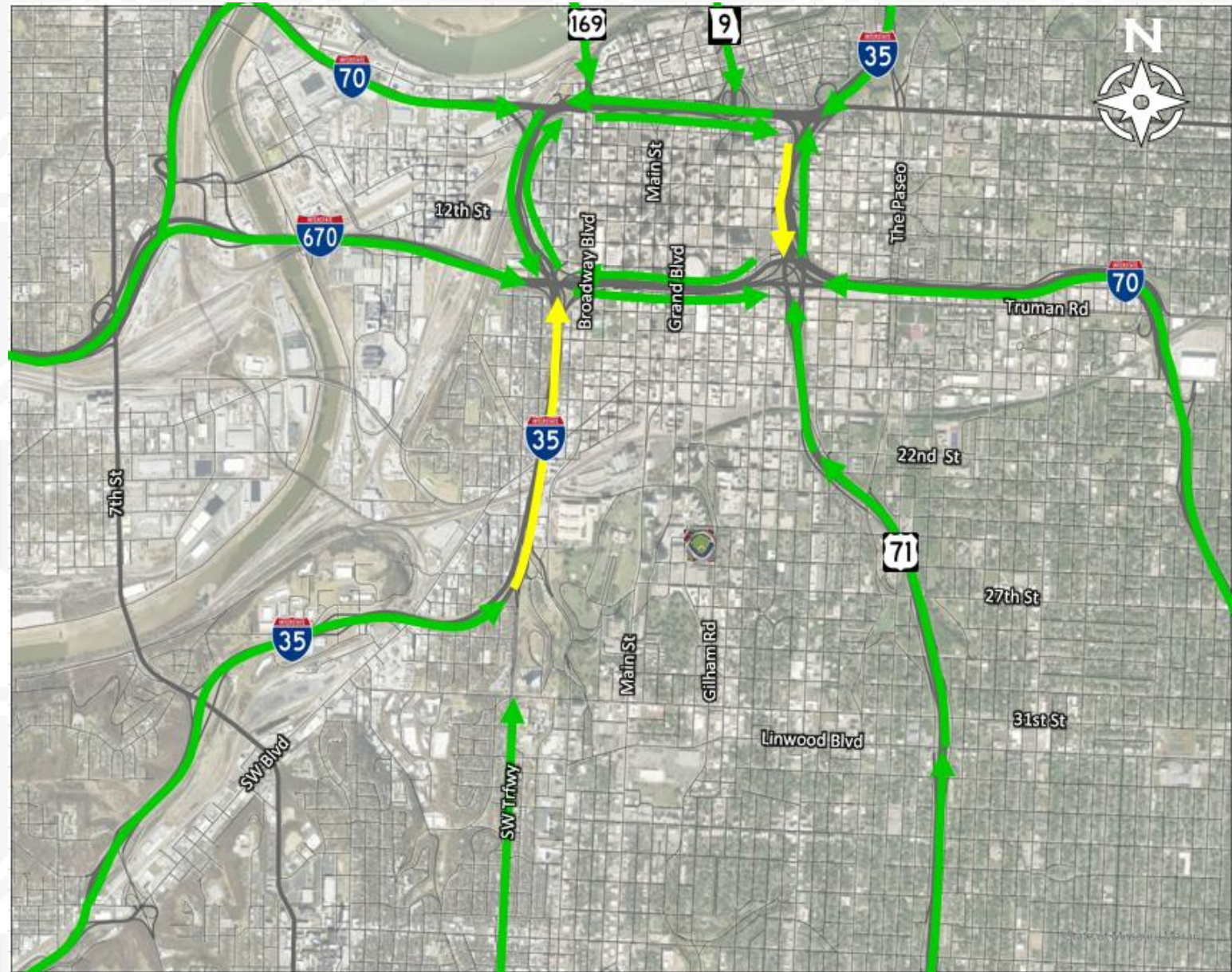
7:30 PM Game Start Time
East Loop Modified

Weeknight Game: Vehicle Trips In

Roadway Capacity

-  Below Capacity
-  Approaching Capacity
-  At Capacity
-  Above Capacity
-  Significantly Above Capacity

- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips OUT

No Improvements

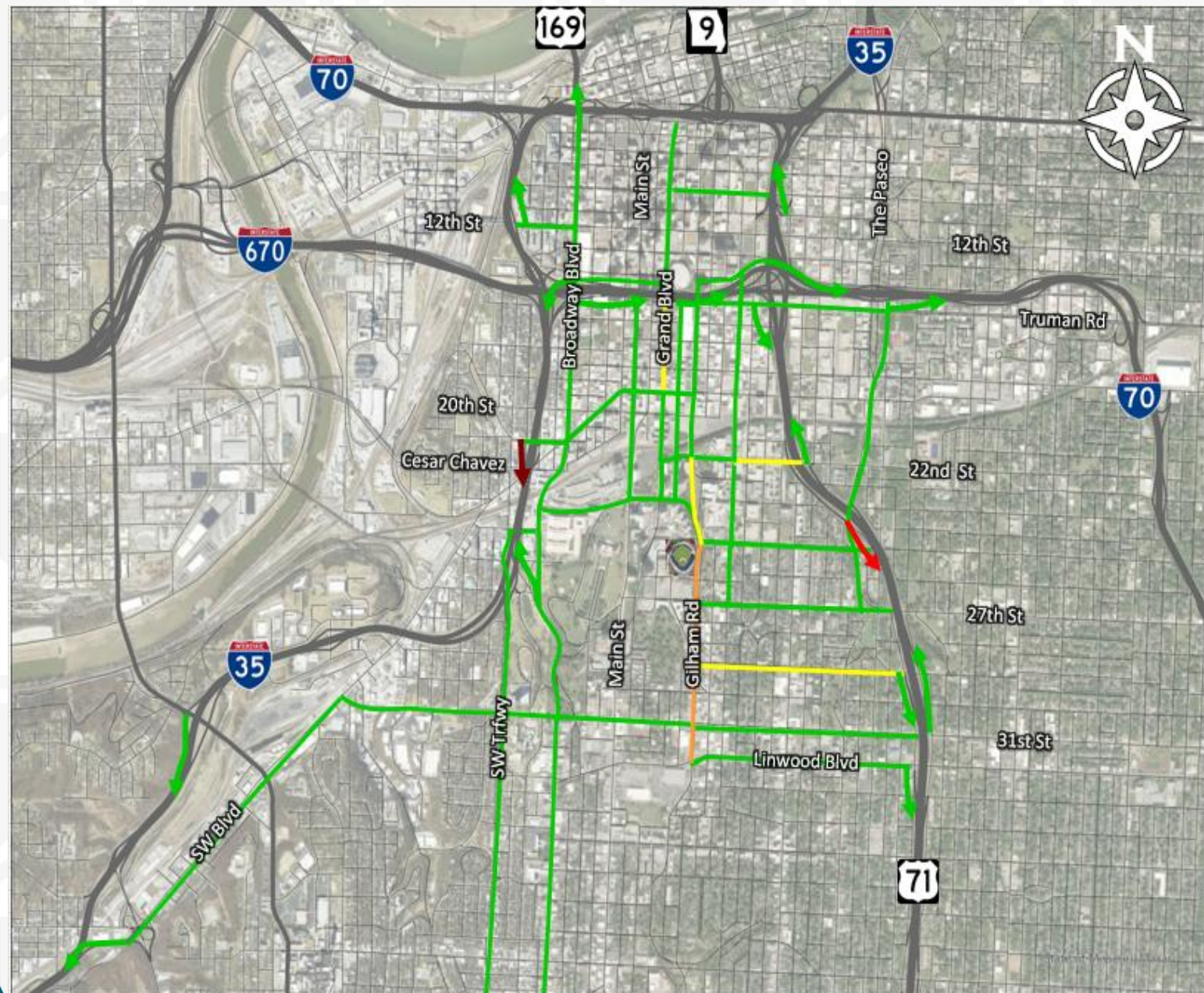
Ramps and Local Roadways

Weeknight Game: Vehicle Trips Out

Roadway Capacity

- Below Capacity
- Approaching Capacity
- At Capacity
- Above Capacity
- Significantly Above Capacity

- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips OUT

Proposed Improvements

Ramps and Local Roadways

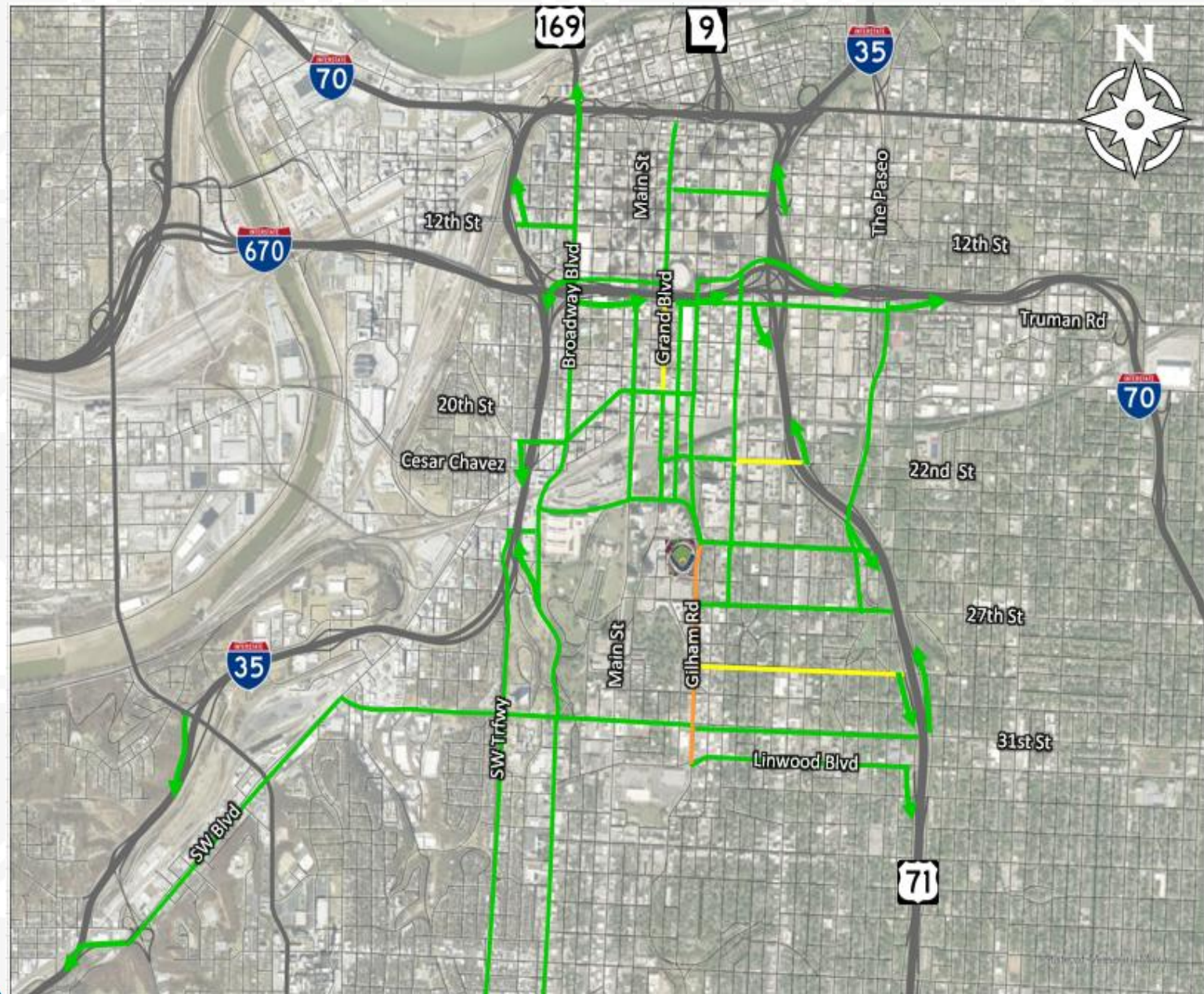
Weeknight Game: Vehicle Trips Out

Roadway Capacity



With Proposed Improvements

34,000 Event Attendance
80% Arrival/Departure Rate within
1 Hour of Event



Weeknight Game Trips OUT

No Improvements

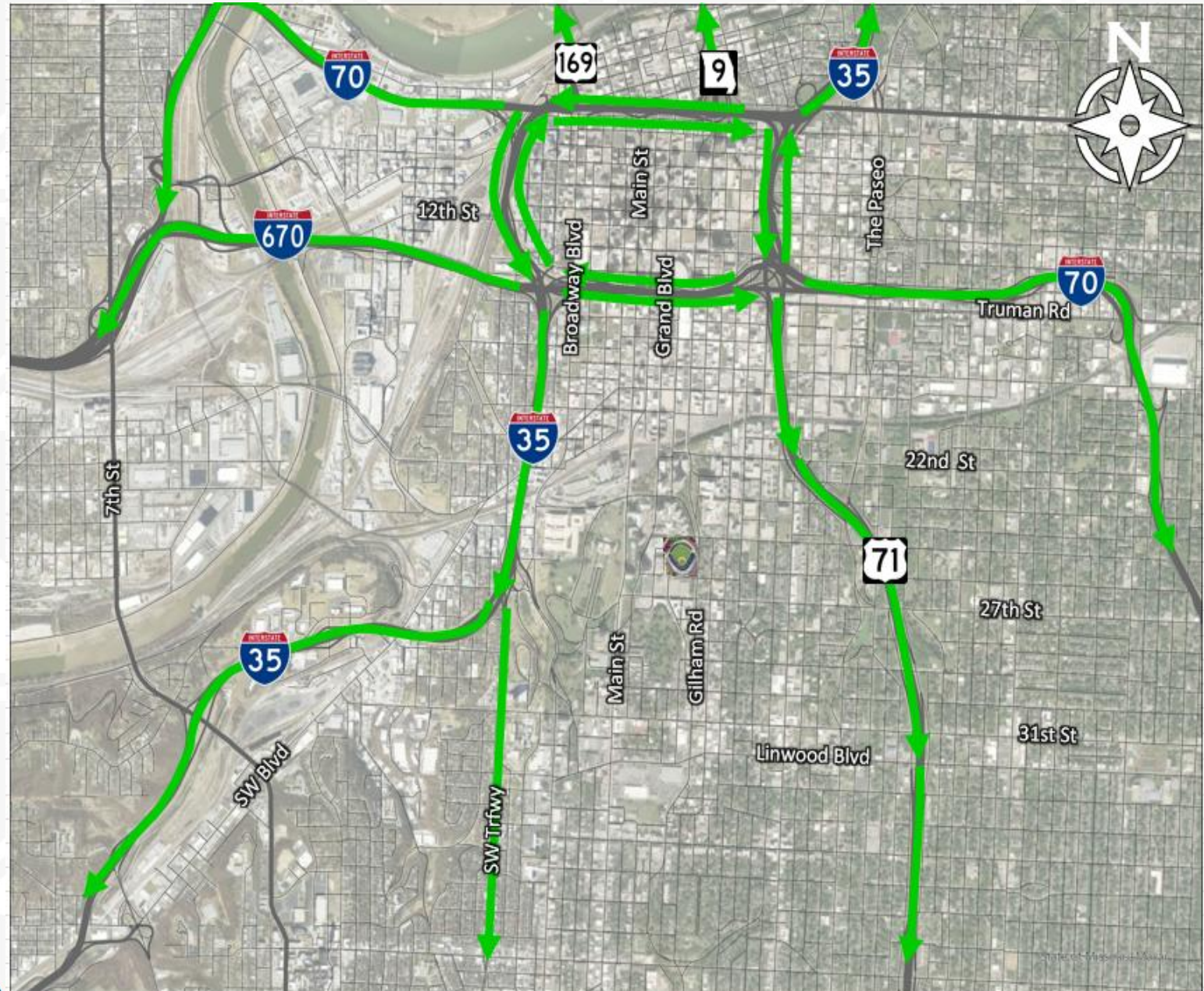
Regional Freeways

Weeknight Game: Vehicle Trips Out

Roadway Capacity



- Existing Access (No Improvements)
- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Weeknight Game Trips OUT

Proposed Improvements

Regional Freeways

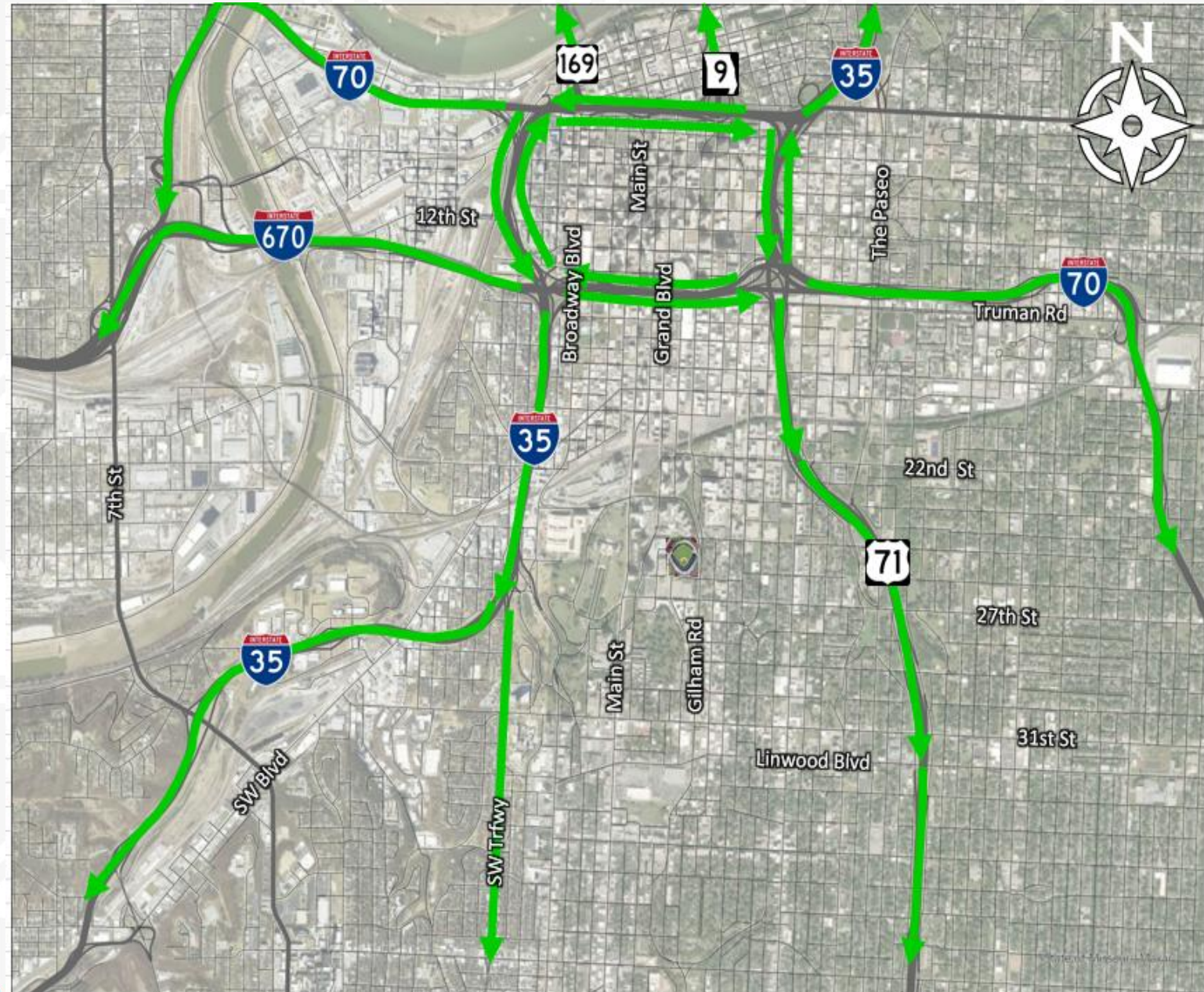
Weeknight Game: Vehicle Trips Out

Roadway Capacity

- Below Capacity
- Approaching Capacity
- At Capacity
- Above Capacity
- Significantly Above Capacity

With Proposed Improvements

- 34,000 Event Attendance
- 80% Arrival/Departure Rate within 1 Hour of Event



Capacity Constraints

Arrival

- Northbound I-35
- East side of the Loop
- I-35/20th SB off-ramp
- 22nd Street between US-71 and stadium area
- North-South local routes to site (Oak/Gillham, Grand, etc.)
- East-West approach routes to major parking areas (27th to east, Pershing to west)

Departure

- I-35 / Pennway SB on-ramp
- US-71 / Paseo SB on-ramp
- 22nd Street between stadium area and US-71
- North-South local routes to site (Oak/Gillham, Grand, etc.)
- Pershing Rd west of site



Recommendations



Freeway and Ramp Improvements

☑ Reconstruct US-71/22nd Street interchange

- Provide two-lane exits to 22nd Street with an option lane in the northbound and southbound directions
- Include dual northbound entrance ramp, merging to one lane before joining NB US-71
- Widen entrance from Harrison Street / Paseo to SB US-71 to dual lanes, merging to one lane before joining SB US-71

☑ Reconstruct I-35/Pennway Street interchange

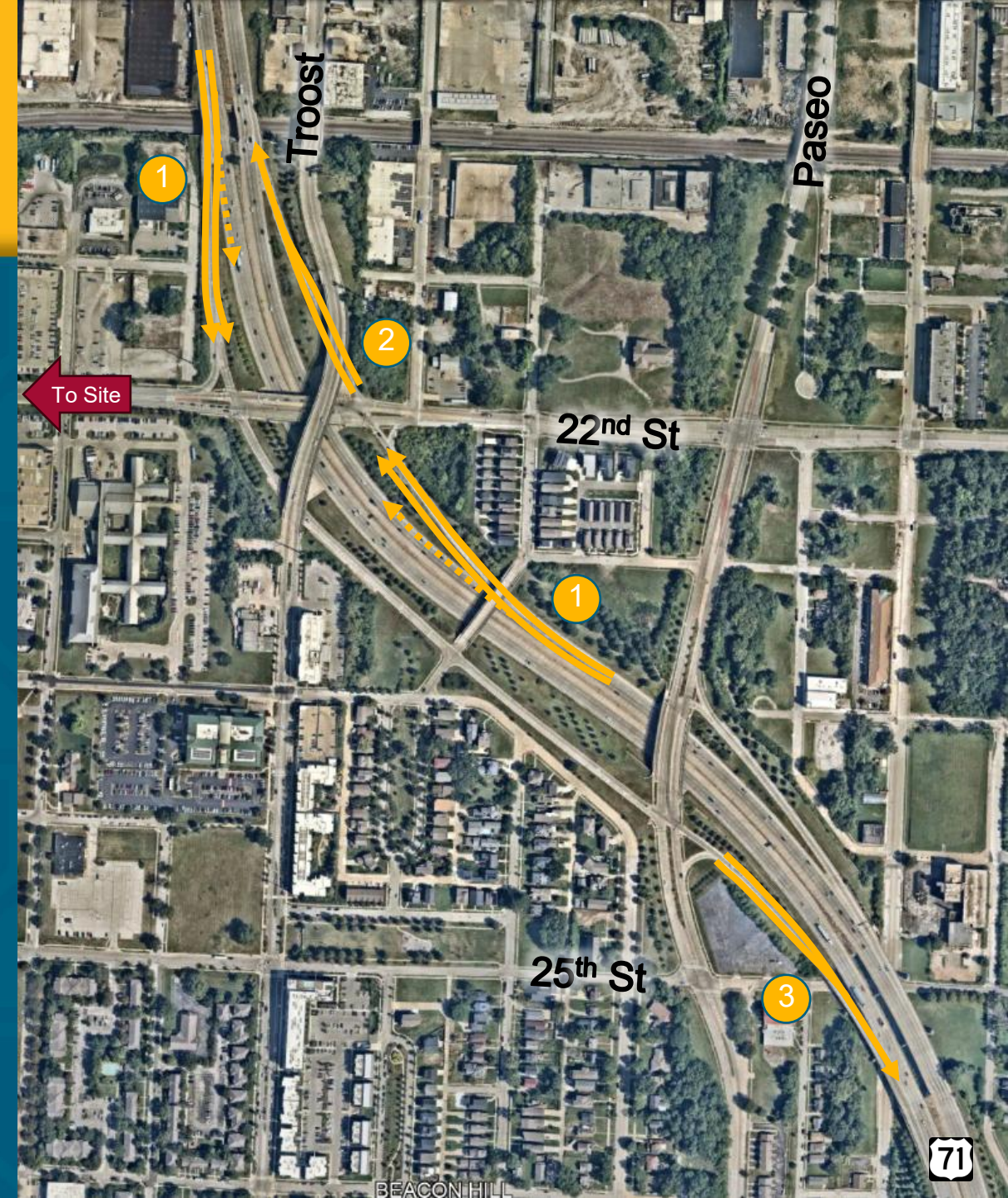
- Provide two-lane entrance/exit ramps to/from the south
- Reconfigure NB I-35 exit with an option lane from I-35
- Widen SB I-35 entrance ramp to two lanes, merging to one, plus an improved acceleration lane on I-35
- Reconfigure intersection of Pennway / Broadway / Southwest Blvd intersection cluster

☑ Reconstruct I-35 SB off-ramp to 20th Street

- Provide option lane on SB I-35 plus dual lane ramp to 20th Street
- Extend gore and add barrier between SB I-35 and WB I-670 ramps to eliminate weave from WB I-670 to 20th Street

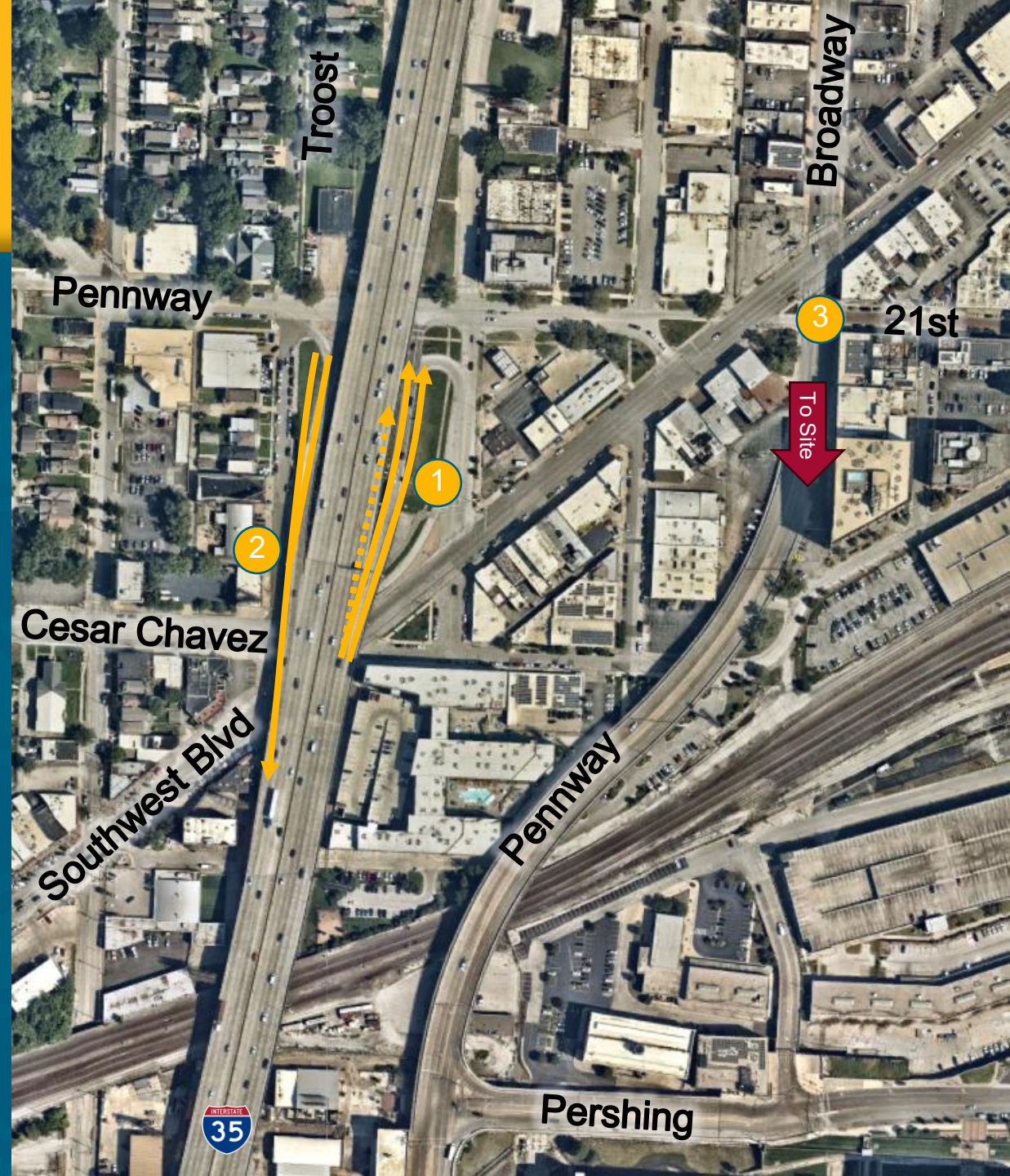
Reconstruct US-71 and 22nd Street Interchange

#	Improvement
1	Provide two-lane exits to 22nd Street with an option lane in the northbound and southbound directions
2	Include dual northbound entrance ramp, merging to one lane before joining NB US-71
3	Widen entrance from Harrison Street / Paseo to SB US-71 to dual lanes, merging to one lane before joining SB US-71



Reconstruct I-35 / Pennway St Interchange

#	Improvement
1	Reconfigure NB I-35 exit with an option lane from I-35
2	Widen SB I-35 entrance ramp to two lanes, merging to one, plus an improved acceleration lane on I-35
3	Reconfigure intersection of Pennway / Broadway / Southwest Blvd intersection cluster



Reconstruct I-35 / 20th St Interchange

#	Improvement
1	Provide option lane on SB I-35 plus dual lane ramp to 20th Street
2	Extend gore and add barrier between SB I-35 and WB I-670 ramps to eliminate weave from WB I-670 to 20th Street

PROJECT HOME RUN



Local Street Improvements

- ✓ **27th Street:** Modify bicycle lanes to provide three-lane section with reversible center turn lane.
- ✓ **27th Street / Northbound US-71 Ramps:** Remove median island and restripe to permit dual northbound left-turns during arrivals. Potentially install traffic signal.
- ✓ **25th Street (West):** Reconstruct 25th Street between Southwest Boulevard and Broadway Street to provide consistent alignment
- ✓ **22nd Street (East):** Remove multiple at-grade midblock pedestrian crossings between Gillham Road and US-71. Provide medians and edge road treatments to prohibit pedestrians from crossing 22nd Street directly; enhance pedestrian crossings over (or under) 22nd Street.
- ✓ **20th St One-Way:** Evaluation conversion of 20th Street to one-way eastbound with two lanes between I-35 and Southwest Boulevard
- ✓ **Pershing Rd Reconstruction:** Narrow roadway to shorten pedestrian crossings.
- ✓ **Broadway / 31st Intersection:** Reconfigure Broadway / 31st intersection to include east / west left-turn lanes
- ✓ **22nd Street and McGee Intersection:** Install a traffic signal
- ✓ **22nd Street and Grand Intersection:** Evaluate intersection modifications to improve east/west travel
- ✓ **Gillham / 25th / Pershing Intersection:** Improve geometrics and signalize intersection to improve operations
- ✓ Upgrade traffic signals; many existing signals will need to be improved
- ✓ Evaluate further reclaiming vehicular capacity on north / south routes through Crossroads (i.e. Oak / Gillham, Grand)

Operational Recommendations

- ✓ Provide accommodations for hospital traffic with 25th Street, Holmes, Cherry as focal points
- ✓ Utilize variable message signs (VMS) to encourage trips via northbound US-71 to access via 31st – Linwood
- ✓ Utilize variable message signs (VMS) to encourage trips via southbound I-29/35 to access via Oak / Grand on north side of loop
- ✓ Build traffic operations center to monitor game day travel patterns, facilitate traffic flow, and update DMS signage
- ✓ Utilize center turn lane on 20th St between Southwest Boulevard and Grand St as a 2-way reversible lane on game days (2 lanes eastbound for arrivals and westbound for departures)
- ✓ Evaluate reversible lanes to minimize widening on Gillham and 27th Street
- ✓ Discourage / restrict access to site via:
 - I-670 WB off to Broadway (left turn under Convention Center)
 - I-35 SB off to Broadway (U-turn loop through Penn Valley Park)
 - I-35/Cambridge Circle (low-quality crossing of railroad tracks to access Southwest Boulevard)
 - 25th St (east of site) via Paseo (no thru movements at Gillham/Pershing)

Operations Center Recommendation

Traffic Operations

- Validate need for upgraded traffic signals, communication lines (fiber optics)
 - Discuss with KCMO staff
- Establish playbook for events overlapping
 - Royals
 - Kauffman Performing Arts
 - T-Mobile Center
 - First Fridays
 - Conventions, Etc.

Parking Operations

- Zoned Parking Management / Variable Message Signing

Emergency Services

- Police
- Medical
- Routing for hospital access



Other Considerations

TNC Pick-Up / Drop-Off

- Multiple locations for drop-off may be feasible
- Lot south of 27th potential for pick-up

Consider providing additional parking north of ballpark / south of I-670 (Crossroads)

- May allow more flexibility for accessing regional freeway system through downtown ramps
- North/south capacity remains a concern with restricted roadway capacities

Implement Zoned Parking

- Align parking to purchaser's address
- Minimize overlapping of trips