Welcome, Neighbors!

Public Meeting
Kenwood – Arrowhead Intersection
Thursday, July 23, 2015
Agenda

- Traffic Studies Conducted
- Intersection Safety
- Potential Improvements
- Funding
- Next Steps

Keith Hamre, Director of Planning and Construction Services
Cindy Voigt, City Engineer
Issues

- Pedestrian safety
- Existing traffic operations
- Turning conflicts
Level of Service (LOS)

Planning Level Estimate of Level of Service (LOS)

Capacity Assumptions*
- Through Only Lane: 800 vph
- LT/TH Lane: 600 vph
- TH/RT Lane: 700 vph
- TH/RT/TT Lanes: 600 vph
- Turn Lanes: 350 vph

* Assumes 1/4 mile signal spacing. For less than 1/4 mile signal spacing, roadway becomes too volatile to determine LOS by ADT.

Peak Hour Percentages
- Arterial Roadway: 10%
- Directional Orientation: 60/40

Note: Approximate values based on highly dependent assumptions. Do not use for operational analyses or final design.
Traffic Studies

- **2012 conditions:**
  - Overall intersection LOS B (15.5 – 19.9 seconds of delay per vehicle)
  - Higher than expected crash rate for this type of facility.

- **2013 forecasts:**
  - Overall LOS C and D during a.m./p.m. peak hours
  - Northbound approach (Kenwood Avenue) expected to have delays over 100 seconds per vehicle
Traffic Studies

- Previous Recommendations:
  - **Near-term:** striping improvements and traffic signal timing improvements
  - **Mid-term:** Multilane roundabout or traffic signal with additional geometrics and capacity. Consider additional analysis as redevelopment occurs and incorporate access modifications.
  - **Long-term:** Corridor access management by coordinating access modifications and integrating backage roads into site plans.

- Overall intersection LOS B in 2015 and 2016 scenarios
- Proposed development will have a nominal impact on the traffic operation of nearby intersections.
- Recommendations: Signal optimization, install zebra crosswalks, move yield sign on free right, consider pedestrian advance warning sign
Public & Neighbor Comments

- Calm speeds
- Update signal facilities to allow ample crossing times
- Enhance the visibility of pedestrians
- Create pedestrian refuges where possible
- “Free right” at eastbound Arrowhead: perceived safety concerns regarding vehicle speed and pedestrian visibility
- Consider HAWK or similar pedestrian signal at Cleveland if no signal placed.
- Number of accesses to local businesses are a concern
Overall Intersection Safety Characteristics

- Access control
- Vehicle safety
- Pedestrian/bike safety
Source: MnCMAT Crash Data, 2009-2013
Serious Crash is defined as fatal, incapacitating and non-incapacitating crashes (K+A+B)
62% of serious crashes at traffic signals occur on roads with a speed limit 40 mph or less.

Data Source: MnCMAT
All Serious Pedestrian/Bicyclist Crashes by Relation to an Intersection

*Five Year Period of 2009-2013, State/County/City Roads*

Most pedestrian/bicyclist crashes, 72%, occur at at-grade intersections.

Data Source: MnCMAT
All Serious Pedestrian/Bicyclist Crashes at At-Grade Intersections by Traffic Control Device

Five Year Period of 2009-2013, State/County/City Roads

Most serious pedestrian/bicyclist crashes (40%) occur at traffic signals.

Data Source: MnCMAT
Pedestrian/Bike Strategies

Highlights

- Some more recent pedestrian and bicycle strategies include:

  - **Countdown Timers** – Countdown timers are flashing timers, usually installed with pedestrian indication lights, which provide the number of seconds remaining during the pedestrian phase.

  - **Leading Pedestrian Interval** – A leading pedestrian interval provides the pedestrian walk 2 or 3 seconds ahead of the vehicle green, allowing pedestrians a head start and the ability to enter the crosswalk before right-turning vehicles can turn into the crosswalk.

  - **HAWK Signals** – Should only be used in conjunction with a marked crosswalk and typically not at an intersection.

  - **Bike Boulevards** – Still considered experimental – however, one study looking at seven bike boulevards in Berkeley, found a 60% reduction in bicycle-involved crashes.
Goals

- Enhance and encourage pedestrian amenities
- Accommodate current and future vehicle traffic
- Minimal impact on existing properties
- Improve Crosswalk Visibility
- Improve Free Right Geometry
- Proposed Development Area
- Widen Kenwood Ave to Provide Dedicated Left Turn Lane
- Close Access
- Signal & Timing Improvements
- Shared Access
- Potential Traffic Signal
Improve Crosswalk Visibility

• Zebra striping on eastbound approach – 2015
• Zebra striping on other legs of intersection
• Move yield sign at “free right” before the crosswalk
Improve Free Right Geometry

- Traffic study shows converting to right-turn lane does not severely impact Level of Service, but lengthens stacking at peak times.
- Could also tighten angle to slow traffic and improve visibility.
Signal & Timing Improvements

- Will reduce wait times
- Improve pedestrian crossing times

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Recall Mode: None
Act ONY Draw (s): 15.9
Actualized (s): 24.6
Act (s): 24.6
Control Delay: 12.4
Queue Delay: 0.0
Total Delay: 12.4
LOS: B
Approach Delay: 12.4
Approach LOS: B

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 67.1
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Minimum v/s Ratio: 0.64
intersection signal delay: 12.6
Intersection LOS: B
Intersection Capacity: Mixed 65-90%
Level of Service: A
Analysis Period: 0.05
Shared Access

- Consolidate access with alley to Warren Avenue
Widen Kenwood Avenue
• Developer will dedicate 10’ along Kenwood Avenue for new left turn lane
Potential Traffic Signal

- Traffic study suggests signal will not meet warrants for volume.
- Traffic signal meets warrants for safety/crashes
- Traffic signal may be needed for pedestrian access
Funding & Phasing

- Need to determine what improvements will be made.
- Need to program funding for design and construction.
- Funding partners:
  - Developer
  - County
  - City
  - Property owners
Next Steps

- Continue discussions with Kenwood Village developers and other existing businesses
- Approval by Council for funding alternatives