



MEMO TO: Mayor and City Council

FROM: Don Cairns, Transportation Services Manager *DC*  
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DATE: June 27, 2006

SUBJECT: **Study Session for 172<sup>nd</sup> Avenue NE Corridor Study (NE 111<sup>th</sup> Street to NE 128<sup>th</sup> Street)**  
**Project No. 05-CI-25/101030**

This memo is to provide information to Council regarding outcomes of the 172<sup>nd</sup> Avenue NE Corridor Study from the environmental analysis, traffic calming design, and public meetings held on April 27<sup>th</sup> and June 12<sup>th</sup>, and proposes recommended set of improvements in the North Redmond area. At the study session staff will provide a brief presentation, answer questions and seek input from Council on the proposal and next steps.

This memo addresses the following areas:

- Project status
- Project goals
- Public Outreach
- Environmental Analysis
- Staff recommendations

#### Project Status

City Council approved a consultant agreement with David Evans and Associates on March 7, 2006 to begin the corridor study and environmental analysis. Two project open houses were held on April 27, 2006 and June 12, 2006 to receive public input on the proposed roadway extension, and on the design of traffic calming on 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street. We are returning to Council at this point to discuss the outcomes of the study.

#### Project Goals

Based on information in the Comprehensive Plan and Transportation Master Plan (TMP) and current issues on the corridor, the project goals were identified as:

- Provide for North Redmond connectivity
- Reduce traffic speeds,
- Discourage regional through traffic,
- Provide continuity along the corridor

- Develop cross-sections for conditioning development
- Protect neighborhood character.
- Provide emergency service access
- Enhance multi-modal opportunities

**Project Description**

The corridor study examined the impacts of extending 172<sup>nd</sup> Avenue NE versus improving the existing connection of the NE 122<sup>nd</sup> Street/162<sup>nd</sup> Place NE corridor to NE 124<sup>th</sup> Street. See Attachment A for the study vicinity map.

As part of the design, the 172<sup>nd</sup> Avenue NE corridor was broken into four (4) segments to better consider the distinctly different existing characteristics of the corridor.

Segment	172 <sup>nd</sup> Avenue NE Corridor Segments			
	From	To	Current Condition	TMP Direction
<b>A</b>	NE 111 St.*	NE 116 St.	Curb and gutter on the west side and most of the east side	Multimodal collector arterial
<b>B</b>	NE 116 St.*	NE 122 St.	Some recently completed curb and gutter and development potential	Connector street
<b>C</b>	NE 122 St.*	NE 124 St.*	Unimproved	Connector street
<b>D</b>	NE 124 St.	NE 128 St.	In unincorporated King County – no curb and gutter	Connector street if annexed by Redmond

\* Including the intersection.

In addition, to the environmental analysis, this project developed preliminary channelization designs for both 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street corridors in order to establish continuity along the entire corridor length, to develop the appropriate cross-sections and traffic calming treatments, and to fulfill objectives for the corridors as outlined in the TMP.

**Public Outreach**

Staff provided a significant public outreach for this project focused on education about traffic calming treatments and designs, and on possibilities for the roadway extension. Five stakeholder interviews were conducted prior to the first open house to gauge interests, concerns, and ideas about the study. The stakeholders represented City and unincorporated County residents with various interests in the project. These interviews provided information that was used to prepare for the open houses and to develop alternatives.

Two project newsletters describing the study and announcing the public meetings were mailed to approximately 500 North Redmond residents in the areas around the corridor, as well as distribution to an extensive email list of homeowners associations and interested residents in

April and June. Notices of the public meetings were advertised in the Redmond Reporter, in/on the City's event calendar, RCTV, the City's website – What's New, and on the project website. The second open house was also advertised with event signage placed along the corridor at the beginning of June, and on the reader board at Redmond Junior High.

Attendees at both open houses were invited to write comments about the proposal directly on the layouts and were invited to complete comment forms and submit them at the workshop, by mail, fax, or email.

### **Open House #1**

Approximately 26 people attended the first open house on April 27, 2006. Display boards describing the proposed cross-sections, traffic calming treatments, and traffic impacts were available for reference. The main work area included roll-out plots of the proposed cross-section and design for alternatives for 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street.

Traffic calming /roadway cross-section alternatives presented for 172<sup>nd</sup> Avenue NE from NE 111<sup>th</sup> Street to NE 128<sup>th</sup> Street included the following:

- Alternative 1 featured center raised median islands with speed humps and on-street parking in various locations
- Alternative 2 featured a narrower roadway cross-section with traffic calming provided by a series of speed humps, traffic circles, bulb outs, and on-street parking
- Intersection treatments at NE 116<sup>th</sup> Street were a traffic signal or a roundabout
- Intersection treatments at NE 122<sup>nd</sup> Street were a traffic circle or a roundabout

One traffic calming/roadway cross-section was presented for the NE 122<sup>nd</sup> Street corridor:

- Alternative 1 featured center raised median islands with speed humps and parking near the Lake Washington School District property at the corner of 172<sup>nd</sup> Avenue NE.
- Intersection treatments at 162<sup>nd</sup> Place NE/NE 124 Street were restriction to right-in/right out or the existing stop controlled channelization

An informational handout was provided that showed the design criteria and the existing and proposed cross-sections (Attachment B). The project manager and the traffic calming coordinator presented an overview of the project history and traffic calming techniques and effectiveness. City staff members from Transportation, Planning, and Development Services, along with consultant and King County staff, were available throughout the meeting to answer questions and hear input from attendees.

From the first open house eight citizens provided comments. See Attachment C for a complete summary of the meeting and listing of the comments. With regards to traffic calming, we heard that a mix of devices, such as narrow streets, speed humps, traffic circles, raised crosswalks, curb bulbs, and medians would reduce speeds and add to neighborhood character. Some residents supported having roundabouts at major intersections. With regards to the extension, we heard from some residents that the proposed extension is a reasonable way to provide neighborhood

connections, if traffic calming is implemented. However, we also heard that the extension would negatively impact area neighborhoods by attracting commuter traffic even with traffic calming measures in place.

### **Open House #2**

Thirty-four people attended the second open house held on June 12, 2006. Approximately eleven of the attendees had also attended Open House #1. Display boards presented the alternatives analysis process for the extension study, the three final options of the extension study, an implementation strategy for the preferred alternative, and outcomes of the environmental analysis. The main work area included roll-out plots of the preferred traffic calming/street design for 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street, with the differences between the three final extension options shown.

The roll plots showed the following:

- Options 1A & 1B: Full roadway extension of 172<sup>nd</sup>
  - NE 111<sup>th</sup> Street to NE 128<sup>th</sup> Street - featured a narrow roadway cross-section with traffic calming provided by a series of speed humps, traffic circles, bulb outs, and on-street parking (this showed full street improvements in Segment D)
  - Roundabout at NE 116<sup>th</sup> Street
  - Traffic circle at NE 122<sup>nd</sup> Street
  - 122<sup>nd</sup> corridor – featured the same cross-section and traffic calming as 172<sup>nd</sup> from 172<sup>nd</sup> Avenue NE to 162<sup>nd</sup> Place, with the addition of a raised center median and slight realignment of the roadway down the hill to NE 124<sup>th</sup> Street
  - Intersection treatments at 162<sup>nd</sup> Place/NE 124<sup>th</sup> Street– Option 1A showed a restriction to right-in/right out , Option 1B showed installation of a traffic signal
  
- Option 2 : Emergency/Non Motorized extension of 172<sup>nd</sup>
  - NE 111<sup>th</sup> Street to NE 123<sup>rd</sup> Street- featured a narrow roadway cross-section with traffic calming provided by a series of speed humps, traffic circles, bulb outs, and on-street parking
  - NE 123<sup>rd</sup> Street to NE 124<sup>th</sup> Street– featured a 20' wide paved emergency access, with full non-motorized improvements, and a gate at 124<sup>th</sup> Street
  - Segment D – no change to existing
  - 122<sup>nd</sup> corridor – featured the same cross-section and traffic calming as 172<sup>nd</sup> from 172<sup>nd</sup> Avenue NE to 162<sup>nd</sup> Place, and a raised center median and slight realignment of the roadway down the hill to NE 124<sup>th</sup>
  - Traffic signal at 162<sup>nd</sup> Place NE/NE 124 Street

An informational handout was provided that showed the final extension options, and the preferred traffic calming/street design cross-sections for 172<sup>nd</sup> and 122<sup>nd</sup> corridors (Attachment D). The project manager presented a summary of the study findings and discussed the process used to narrow the list of alternative sets of improvements to the preferred alternative. City staff members from Transportation, Planning, and Development Services, along with consultant and

King County staff, were available throughout the meeting to answer questions and hear input from attendees.

From the second open house 14 citizens provided comments. See Attachment E for a complete summary of the meeting and comments received. There were strong opinions on both sides of the extension discussion. Many people indicated that the extension is a needed improvement that would be used by both City and non-City residents to access work and shopping trips. Others, both north and south of NE 122<sup>nd</sup> Street, indicated that the extension will destroy their neighborhood character.

#### Environmental Analysis

A significant effort of this study was evaluating environmental conditions along 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street in order to compare impacts from the alternative scenarios. Discipline reports were completed for; air quality;; historic, cultural, and archaeological resources; noise; critical areas (including wetlands, plants and animals, and fish and wildlife habitat); and geotechnical issues (including soils, geological hazards, and hazardous materials). For summaries of the environmental discipline reports, except the noise summary which is under revision, see Attachment F.

Overall, while each route had impacts to the environment, there were no fatal flaws with either route. The identified impacts result in increased construction costs based the need for mitigation and in increased awareness during construction to lessen impacts.

There were no impacts for either route associated with air quality, hazardous materials, or cultural resources.

Noticeable increases in traffic noise are anticipated along both corridors in the future due to increased traffic volumes from future and proposed development, and other traffic (except for segment D which does not have increased noise levels if the extension is not built). However, mitigation is not required by Redmond code since the code only addresses noise increases greater than 5 dBA on arterial streets. The area north of NE 116<sup>th</sup> Street is classified as a connector, and the area south of NE 116<sup>th</sup> Street does not experience noise increases high enough to be regulated. With the extension one site on 172<sup>nd</sup> Avenue NE (at NE 122<sup>nd</sup> Street) meets WSDOT's threshold for a substantial impact (an increase of 10 dBA over existing) and requires an examination of mitigation. The report recommends signage to prohibit large trucks, and the traffic calming measures identified in the project itself as the appropriate mitigation.

The largest impacts associated with the environment are to critical areas and geotechnical issues. At 162<sup>nd</sup> Place NE/NE 124<sup>th</sup> Street there are steep slopes (that will require an exemption for construction) and wetlands. Along 172<sup>nd</sup> Avenue NE there are impacts to wetlands and woodpecker habitat. All the anticipated impacts can be mitigated with existing City regulations.

### Traffic Analysis

Staff worked with the consultant to refine the existing citywide model for the north Redmond area – bounded by the intersections of Willows Road/NE 124<sup>th</sup>, Avondale Road/ NE 124<sup>th</sup> Street, 166<sup>th</sup> Avenue NE/NE 104<sup>th</sup> Street, and Avondale Road/NE 104<sup>th</sup> Street. Existing traffic counts were collected, and future PM peak hour volumes were forecast for 2022 with and without the 172<sup>nd</sup> Avenue NE roadway extension. In 2022 traffic in the overall area approximately doubles with or without the extension. See attachment G for a comparison of traffic volumes at area intersections.

Traffic volumes on 172<sup>nd</sup> south of 116<sup>th</sup> double in the future (from 280 vehicles per hour (vph) to 550-600vph) with or without the extension. Without the extension drivers continue the trend seen today of driving north on 166<sup>th</sup> Avenue NE/NE 111<sup>th</sup> Street/172<sup>nd</sup> Avenue NE and turning right on NE 116<sup>th</sup> Street to access Avondale Road. With the extension those drivers are diverted from NE 116<sup>th</sup> Street and continue north on 172<sup>nd</sup> Avenue NE to NE 128<sup>th</sup> Street, and create a slight increase to traffic on northbound 166<sup>th</sup> Avenue NE.

Without the extension, traffic volumes on 172<sup>nd</sup> Avenue NE, north of NE 116<sup>th</sup> Street in 2022 increase to approximately 200 vehicles per hour, which are mostly local trips accessing the new developments, although there is some pass-through traffic. With the extension traffic volumes grow to match those in the segment south of NE 116<sup>th</sup> Street (from 200vph to 450-600vph).

With the extension some traffic is diverted from Redmond-Woodinville Rd to 166<sup>th</sup> Avenue NE and use 172<sup>nd</sup> Avenue NE to access NE 128<sup>th</sup> Street. Approximately 25-50% of the traffic reaching the 172<sup>nd</sup> Avenue NE /NE 128<sup>th</sup> Street intersection has a destination in English Hill or along NE 128<sup>th</sup>, with the remainder having a destination outside of the local area. Based on research of traffic calming studies done by the consultant, traffic calming can be expected to reduce forecast volumes by approximately 20%.

Even with the extension traffic continues to use the 162<sup>nd</sup> Place NE/NE 124<sup>th</sup> Street intersection. Due to sight distance, speed, and grade issues at that intersection, increased traffic from 162<sup>nd</sup> in that location has safety implications. For that reason, leaving the intersection in the existing configuration was determined to be unsatisfactory. Either restriction of access or signalization of full access is needed.

### Staff Recommendations

#### **Traffic Calming Treatments/Street Design**

Staff recommends the traffic calming/roadway cross-sections shown at the second open house for both 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street, which feature the following:

- narrow lanes,
- speed cushions,
- curb-bulbs,
- traffic circles, and
- Intermittent parking.

Items specific to the 172<sup>nd</sup> Avenue NE corridor include:

- Multipurpose trail on the west side of the street – 10' paved and 4' soft surface
- Bike lanes (NE 111<sup>th</sup> to NE 116<sup>th</sup>)
- Gateway treatments at NE 111<sup>th</sup> Street
- Raised cross-walk at the PSE trail crossing

This design was chosen based on input from the public and staff, a smaller footprint which provides more space to meander around existing features, a higher degree of traffic calming through use of more “aggressive” devices, reduced maintenance requirements by parks staff (no center median), and the ease of implementation in stages

The recommendation also includes a roundabout at NE 116<sup>th</sup> Street and a traffic circle at NE 122<sup>nd</sup> Street, which were chosen based on public input, ability to provide traffic calming benefits of slow speeds, ability to create and act as gateway features to enhance neighborhood character, improvement of safety for pedestrians and vehicles, and improved intersection operation over a signal (at NE 116<sup>th</sup> Street) – shorter queues, less delay.

### **172<sup>nd</sup> Extension**

Following the first open house staff evaluated 32 combinations of improvements against the project goals and environmental impacts. At the second open house 3 options were presented that best met the goals and impacts criteria (see Attachment H), and indicated a preferred option.

Staff recommends both the full vehicular extension of 172<sup>nd</sup> Avenue NE and installation of a traffic signal at the 162<sup>nd</sup> Place NE/NE 124<sup>th</sup> Street intersection in conjunction with the traffic calming/street design developed for the 172<sup>nd</sup> Avenue NE and NE 122<sup>nd</sup> Street corridors. This recommendation includes the construction of full city street improvements in Segment D, currently outside of the City limits.

This set of improvements will best address long term traffic growth needs and reduce out-of-distance travel and improve system efficiency. The recommended option also:

- Improves connectivity for residents and workers
- Improves safety on 162<sup>nd</sup> Place NE and at the intersection with NE 124<sup>th</sup> Street
- Provides emergency and multi-modal access
- Meets traffic calming objectives
- Consistent with existing plans
- Phased implementation allows improvements to be done over time

### **Next Steps**

Next steps and phased implementation of the staff recommended improvements will be discussed with Council at the study session.

Mayor and City Council

June 27, 2006

Study Session – 172<sup>nd</sup> Corridor Study (NE 111<sup>th</sup> to NE 128<sup>th</sup>)

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Attachments

- A. Vicinity Map
- B. Open House#1 Handouts
- C. Comments from Open House #1
- D. Open House #2 Handouts
- E. Comments from Open House #2
- F. Discipline report summaries
- G. Traffic volumes
- H. Alternatives evaluation