Southeast Area Plan Advisory Committee Meeting 4

MEETING DATE: May 2, 2019
MEETING TIME: 5:15 – 7:45 PM
LOCATION: Nativity Lutheran Church, 60850 Brosterhous Road

Objectives

- Discuss and provide direction for draft land use concepts
- Discuss and provide direction for draft transportation concepts

Agenda

1. **Welcome, introductory items** (Chair Sharon Smith) – 5 min
   a. Introductions, approval of minutes from last meeting

2. **Public Comment** (Chair Smith) – 10 min
   
   *The amount of time to provide comments may be limited to three minutes per person, depending on the number of people wishing to comment. Additional time for public comments is also provided at the end of the agenda under Item #6.*

3. **Agenda Overview and Where We Are in the Process** – (Joe Dills, APG) – 5 min

4. **Land Use Concepts** (Project Team) – 45 min
   
   *This is a discussion and direction item for SEAPAC. The team will summarize recent meetings with property owners and stakeholders, and the land use ideas that have emerged from those discussions. Please see attached memo and “boards”.*
   
   a. Staff briefing
   b. Committee discussion and direction

5. **Transportation Concepts** (Project Team) – 45 min
   
   *This is a discussion and direction item for SEAPAC. As with the land use concepts, the team will summarize recent meetings with property owners and stakeholders, and the transportation ideas that have emerged from those discussions. Please see attached memo and “boards”.*
   
   a. Staff briefing
   b. Committee discussion and direction

Accessible Meeting Information

This meeting/event location is accessible. Sign language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats and CD Formats, or any other accommodations are available upon advance request. Please contact Damian Syrnyk meeting at dsyrnyk@bendoregon.gov, 541-312-4919. Providing, at least, 3 days’ notice prior to the event will help ensure availability.
6. **Public Comment** (Chair Smith) – 10 min

*Similar to Item #2 and depending on the number of people wishing to comment, the time may be limited to three minutes per person.*

7. **Next steps**
   a. Announcements, next meeting date
Minutes
Southeast Area Plan Advisory Committee
Meeting 3
Southeast Area Expansion Plan
February 21, 2019
Nativity Lutheran Church
60850 Brosterhous Road, Bend, Oregon

Committee Members
Ken Atwell, Member
Kip Barrett, Member
Casey Bergh, Member
Sarah Bodo, Member
Butch Hansen, Member
William Hubbert, Member
Anthony Oddo, Member
Jeff Reed, Member

Jacob Schumacher, Member
Sharon Smith, Chair
Rachel Strickland, Member (absent)
Dixon Ward, Member
Rick Williams, Member
Steve Wilson, Member (absent)
Rachel Zakem, Member

City Staff
Wendy Edde, Utility Program Manager
Tom Hickmann, EIPD Planning Director
Ian Leitheiser, Assistant City Attorney
Justin Livingston, City Councilor
Ryan Oster, City Engineer
Allison Platt, Senior Planner
Joshua Romero, Community Relations Manager
Damian Syrnyk, Senior Planner
Jenny Umbarger, Office Specialist II

Consultants & Guests
Joe Dills, Angelo Planning Group
Kira Haggart, Angelo Planning Group
Matt Kittleson, Kittleson & Associates
Ken Pirie, Walker Macy
Jason Wick, Avion Water Company

1. Welcome, introductory items

Chair Smith called the meeting to order at 5:16pm.

a. Introductions, approval of minutes from last meeting

Members, staff and consultants introduced themselves.
Chair Smith called for approval of the previous meeting’s minutes. Member Hansen moved to approve; Member Williams seconded. Minutes were approved unanimously.

2. Public Comment

No public comment.

3. Agenda Overview and Where We Are in the Process

Mr. Dills reviewed the SE Area Plan (SEAP) Work Plan and Process, as outlined in the presentation.

4. Vision and Guiding Principles

a. Brief highlights

Ms. Haggart reviewed the Vision Statement and Guiding Principles as follows:

**Vision Statement**

*Our vision is that the Southeast Expansion Area becomes a complete and walkable community and a welcome addition to Southeast Bend. Houses, businesses, parks and schools are compatible neighbors, and have well-planned transitions between them. The mix of uses are highly connected by neighborhood streets, paths, and open spaces. The area has an active and vibrant outdoor life; it is a place where neighbors are out walking, biking, and interacting daily. The Southeast Expansion Area is a unique and successful community in Bend.*

**Guiding Principles**

- **Create a complete community.** Implement the Comprehensive Plan’s guidance for a mix of uses and refine that direction with ideas from the area-planning process.
- **Design and build a walkable and connected transportation network.** Create a network of connected streets and paths that serve all travel modes and are walkable and bike-friendly. Build “sidewalks to somewhere.” Implement the City’s low stress bike network plan. Lay the groundwork for future transit.
- **Create vibrant public spaces.** Plan for public spaces such as streets, parks, schools, and commercial centers, so there is a vibrant outdoor life throughout the community.
- **Preserve views and the natural landscape.** Integrate views, trees, and rock outcrops into new development and public spaces.
- **Create a sense of identity.** Plan the Southeast Expansion Area so that, when built, it will be recognized as a distinctive place with a strong sense of identity. All development—public and private—will contribute to reinforcing this sense of place.
• **Support a thriving employment area.** Guide the plan so that target industries and businesses are attracted by the unique advantages of locating in this area, and so that residents of the Southeast Expansion Area have the opportunity to live and work in their community.

• **Deliver needed infrastructure.** Create funding strategies, phasing plans, and other actions to ensure that needed infrastructure is delivered in a timely and predictable manner.

  b. Committee input and action: approval of draft Vision and Guiding Principles

Mr. Leitheiser recommended committee members disclose any conflicts of interest at the beginning of each meeting where action items and decisions are called for.

Member Ward disclosed he is a landowner in the “Elbow”.  
Member Reed disclosed he is a landowner in the “Elbow” and a commercial real estate broker.  
Member Oddo disclosed he is a landowner in the “Elbow”.  
Member Hubbert disclosed he is a landowner in the “Elbow”.  
Member Schumacher disclosed he is a landowner in the “Elbow” and a realtor, contractor and developer.  
Member Atwell disclosed he is a landowner in southeast Bend.

Mr. Dills indicated planning-level cost estimates for infrastructure will be discussed near the end of 2019 and beginning of 2020.

As a result of committee discussion, Mr. Dills called for a motion to approve the Vision Statement and Guiding Principles, with the following changes:

• The last sentence in the second bullet point of the Guiding Principles will be amended to read “Lay the groundwork for an area that is well-served by public transportation.”

• Add a bullet to the Guiding Principles that addresses feasibility, and directly states creating an economically feasible plan.

Member Williams moved to approve, Member Smith seconded. The motion was approved unanimously.

5. Transportation - Planned Conditions

Mr. Kittleson reviewed planned transportation conditions, as outlined in the presentation. Member Williams indicated timing, funding and prioritization of planned Oregon Department of Transportation (ODOT) facilities projects are to be determined over the next 20 years. Mr. Kittleson indicated the Murphy Road project, as well as the three new roundabouts (RAB) along Knott Road, will be completed by Fall 2021. Member Oddo inquired about analysis of congestion at the intersection level; Mr. Kittleson indicated the Transportation System Plan (TSP) is looking at that, and that all roads in the area are being contemplated for a rural to urban upgrade. Urban upgrade is taking a road previously built to county standards, adding curbs, sidewalks, etc., and making it fit for a city as opposed to a county.  Mr. Oster confirmed enough pavement exists to accommodate medians or center turn lanes on 15th Street from Reed Market Road to Knott Road.
Chair Smith indicated with regard to exiting the future high school, road design will only allow for a right-hand exit (south) onto 15th Street.

6. Draft Street and Active Transportation Plan Concepts

   a. Presentation
   b. Discussion and input
   c. Summary of direction

Mr. Dills reviewed the currently adopted TSP, as outlined in the presentation. He recommended committee members contact Mr. Syrnyk if they would like to participate in individual or small group discussions regarding transportation planning in the area.

Mr. Pirie reviewed the Draft Streets Plan Concept, as outlined in the presentation. Mr. Dills indicated road placement in the slides is not intended to be exactly where the final roads will be placed; topography and existing buildings will dictate placement, and the number of intersections with Knott Road indicated on the map may not be necessary. Chair Smith noted potential redesign plans for the entrance to High Desert Middle School, as well as the potential for a new elementary school at the south end of the school district’s property that would conflict with Option A on the Draft Streets Plan Concept slide. Ms. Platt indicated that per her discussion with TransCanada, any roads crossing the gas pipeline must cross at a perpendicular angle. Member Oddo expressed concerns about the location of the RAB at Rickard Road; Mr. Syrnyk indicated the need to discuss the County’s long-term plans with regard to Rickard Road. Chair Smith indicated spacing standards for the north-south collectors are not met in the current draft, and eliminating one collector and RAB may be necessary. Maintaining the collector and RAB between the Stevenson and Schatz properties received support from several members. Member Hansen expressed the need to consider topography with regard to building roads that freight trucks will use. Member Smith suggested looking at the collector design associated with the new high school property. Member Atwell would like to see a road with trees and a 10’ wide multiuse path, making it a pleasant place to walk. Member Hansen would like to see planter strips used for storm water drainage. Member Reed expressed concerns about making decisions without an understanding of costs.

Mr. Pirie reviewed the Draft Active Transportation Plan Concept, as outlined in the presentation. Member Bodo expressed support from Bend Parks & Recreation District for a multi-use path on only one side of roads due to construction and maintenance requirements. Trails in the concept plan may need modified due to potential of a future elementary school. Member Bodo and Chair Smith noted a 10’ multi-use path needs added to the concept plan on the west side of the future high school site that connects Alpenglow Community Park to Knott Road.

7. Infrastructure – Existing and Planned Conditions

   a. Water
Mr. Wick from Avion Water Company (Avion) reviewed water infrastructure, as outlined in the presentation. Mr. Wick indicated area development will dictate water needs and infrastructure development by Avion. Currently, all reservoirs are off China Hat Road. Due to a 2018 federal tax bill, a 39% tax increase is assessed to privately held utility companies following a developer turning over pipe ownership to a utility company. That cost will be passed on to developers. Mr. Hickmann indicated a new water line is being run as part of the Murphy Road project that will serve the future middle school. Avion attempts to take advantage of open ditches for improvements. It is coordinating with the high school’s site development plan to run pipe in preparation for private development to the east.

b. Sanitary Sewer

Mr. Hickmann provided an overview of the City’s sewer system plans, as outlined in the presentation. Private development throughout Bend will dictate the timing and location of collection system capital improvements. The City is moving away from pump stations to gravity systems, though regional pump stations are advantageous due to depth of soil in the area. The City’s desire is to place pipes under roadways, not through easements. The current cost of the Southeast Pump Station is estimated in the $10-12 million range and is currently not in the 20-year capital plan, though it is in the sewer PFP. Mr. Syrnyk will provide additional information via email. Temporary pump stations will not be allowed.

c. Storm Water

Ms. Edde reviewed storm water, as outlined in the presentation. A 500 foot buffer around dry wells is required, per the State of Oregon. A public advisory group for storm water has developed recommendations. Dry wells on private property are permitted through the Department of Environmental Quality; upgrades to public facilities, such as right-of-way plans and including dry wells as part of the development of streets, are permitted through the City. Site characteristics dictate whether dry wells or swales must be installed.

8. Public Comment

Colette Blum-Meister, with the Old Farm Neighborhood Association inquired about reasoning behind the Comprehensive Plan designation of commercial and high-density housing along Ferguson, the definition of high-density housing, and the preservation of trees.

Al Eastwood, commercial real estate broker, inquired about the timeline and process in finalizing the selection of Option A, B or C noted on the Draft Streets Plan Concept slide in this meeting’s presentation.

9. Next steps
Mr. Dills indicated the next SEAPAC meeting will be held May 2nd, and details on the March workshop will be communicated as soon as possible.

Mr. Dills adjourned the meeting at 7:18pm.

Respectfully submitted,

Allison Platt
Damian Syrnyk
Jenny Umbarger
Growth Management Department

Accessible Meeting/Alternate Format Notification

This meeting/event location is accessible. Sign and other language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats, language translations or any other accommodations are available upon advance request at no cost. Please contact Jenny Umbarger no later than 24 hours in advance of the meeting at jeumbarger@bendoregon.gov, 541-323-8509, or fax 541-385-6676. Providing at least 3 days’ notice prior to the event will help ensure availability.
Draft Land Use and Transportation Concepts

PREPARED FOR: SEAPAC
COPY TO: Project Management Team
PREPARED BY: Joe Dills and Kyra Haggart, APG
DATE: April 25, 2019

Introduction
The purpose of this memorandum is to introduce the draft plan concepts to be discussed by the Southeast Area Plan Advisory Committee (SEAPAC) on May 2. The topics are:

- Land Use - walkable neighborhoods, land use precedents, draft land use designation refinements, and land use transitions “toolbox”
- Transportation – streets, trails

The attached plan concept sheets—referred to as “boards” in this memo—are formatted into visual summaries for each of the topics; they describe key issues, principles, built examples, and the draft concepts. The boards are intended to support SEAPAC discussion and direction regarding refinements. Once finalized, they will serve as the materials presented at the next community workshop on July 11, 2019, and in the corresponding online workshop.

How the concepts were developed: outreach meetings with property owners and stakeholders
At its February meeting, SEAPAC discussed preliminary concepts for streets and trails. The discussion concluded with direction to the team to meet with property owners and stakeholders for more property-specific input. Accordingly, the project team arranged and hosted two rounds of informal discussions with property owners to:

- Listen to property owner perspectives and questions regarding the plan and the future uses of their properties;
- Provide information, and;
- Review working concepts for land use and transportation.

Participants in the meetings are listed below in Table 1.
Table 1 – Participants in the Owner/Stakeholder Meetings

<table>
<thead>
<tr>
<th>Owner/Stakeholder Meetings</th>
<th>Round 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Area</td>
<td>Christen Brown, Jody Ward, Dixon Ward, Dean Wise, Steve Wilson</td>
</tr>
<tr>
<td>Central Area</td>
<td>Bruce and Donna Hubbert, John Stevenson, Al Eastwood and Jim Moran for Blue/Granacki, Lynette Blue</td>
</tr>
<tr>
<td>East/North Area</td>
<td>Jeff Reed, Dennis Cowell, Ralph Mabee, Steve Walkley</td>
</tr>
<tr>
<td>Owner/Stakeholder Meetings</td>
<td>Round 2</td>
</tr>
<tr>
<td>West Area</td>
<td>Jody Ward, Dean Wise, Shawn Wilson (Damian met with Steve Wilson before this meeting)</td>
</tr>
<tr>
<td>Central Area</td>
<td>Bruce and Donna Hubbert, Al Eastwood and Jim Moran, Wayne Schatz, Brent Kelleher, Sandy Schumacher, Jacob Schumacher, Jim Dillman</td>
</tr>
<tr>
<td>East/North Area</td>
<td>Dennis Cowell, Cal Gabbert</td>
</tr>
</tbody>
</table>

The project team also visited the project area several times, evaluating potential locations for future intersections along Knott Road; land use options for the central Knott Road area that has constrained sight distance; and other existing conditions relevant to future land uses and transportation improvements. The team worked with City staff from various departments to further develop and refine the plan concepts.

The result of the above-described work is the set of boards attached to this memo. The draft recommendations integrate project direction (such as the vision and guiding principles), property owner and stakeholder input, continued study of site conditions, and working ideas from the project team.

**Land Use**

The following sections summarize key points from the land use boards.

**Walkable Neighborhoods**

- Four conceptual “neighborhoods” are shown that are approximately one-quarter-mile from center to edge. This dimension is a good rule of thumb for a 5-minute walking distance.

- To varying degrees, each neighborhood has a variety of housing options, services, and public destinations such as parks and schools, consistent with the Vision and Guiding Principles.

- The land use precedents boards show examples from one of the Pacific Northwest’s best built examples of a walkable neighborhood: Northwest Crossing in Bend. The Southeast Area Plan will be developed with a sense of place based on its own unique characteristics, but many of the planning principles—such as those guiding walkable neighborhoods and transitions between land uses—will be the same.

- Sunnyside Village in Happy Valley, Oregon is another good example of how 20+ properties were coordinated into a successful walkable neighborhood through the guidance of an Area Plan.

**Land Use Precedents**

- The Land Use Precedents boards are a compilation of pictures of existing local land uses. Similar land use images were presented at the March 21 community workshop;
the photos included on the precedent boards are the ones that were favored by community members.

- The images are included as background information for the draft land use designation refinements.

**Draft Land Use Designation Refinements**

- **Sheet 1 – Existing Plan Designations and Proposed Refinement Areas.** This annotated map displays the existing adopted land use designations in the area and summarizes input from property owners and stakeholders that is proposed as refinements to the currently adopted plan designations on the following sheets.

- **Sheet 2 – Draft Refined Plan Designations and Options** – This map displays what the land use plan would look like if all the changes on Sheet 1 were implemented, including options for the central Knott Road area described below.

- **Central Knott Road Area Options** – Sheet 2 shows options for the land use designations in the central area of Knott Road, near Raintree Drive. These options are proposed because Knott Road has very limited "sight distance" due to the two ridges east and west of Raintree Drive. The area planning process provides more site-specific information than was available during the Urban Growth Boundary (UGB) expansion process. The project team recommends that SEAPAC reconsider the existing General Commercial (CG) designation in this area due to access and safety constraints associated with the sight distance situation. Three options are shown for how the land uses might be revised. In discussions with property owners and stakeholders, the idea to reconsider the land uses in this area was broadly supported.

**The Transitions Toolbox**

- This board presents ideas to implement the part of the Vision Statement that addresses compatibility between uses, which states: “…Houses, businesses, parks and schools are compatible neighbors, and have well-planned transitions between them…”.  

- The basic idea is to require new development to provide transitions such as open spaces or multi-use paths between significant changes in use. For flexibility, a menu of optional transition tools would be provided. A land use map would indicate where transitions would be required.

- The attached Transitions Toolbox is the first draft of the map and the menu of transition tools. *Note: this map currently shows the existing adopted land use designations and will be updated to reflect the refined land use designations once they have been finalized.*

- The initial set of transition tools includes streets, multi-use paths, landscaping, additional setbacks, and natural features.

**Transportation**

The following sections summarize key points from the transportation boards.

**Existing Transportation Issues**

- This board summarizes key challenges and needs for the transportation plan concepts:
  - High speeds on Knott Road and 27th Street.
  - Limited sight distance in the central section of Knott Road. The mapped “Sight Distance Limited Area” is the approximate area between the two ridge lines, plus 500 additional feet to the west and east of the ridges.
Sidewalks, bike lanes, proper drainage and other “urban upgrades” will be needed as development occurs adjacent to rural roads such as Knott Road and 27th Street.

The basic collector-level roads needed are an east-west connection from 15th Street to 27th Street, and a north-south connection from Knott Road to Ferguson Road. The alignment of these roads should balance topography, creating reasonable development parcels, sight distance, and safety.

**Street Plan**

- **Connection from 15th Street to 27th Street** – This collector alignment runs from the planned roundabout on 15th Street to a proposed new roundabout on 27th Street in the northeast neighborhood of the study area. Previously, the team had looked at alternatives further south in an effort to connect to Rickard Road. However, the Rickard Road connection has too many challenges (crossing the park and school properties and crossing the natural gas pipeline). The new alignment provides a strong east-west axis connecting all neighborhoods in the area and provides good routes between the planned new middle and high schools and High Desert Middle School and to the future commercial center at Ferguson Road and 27th Street.

- **Connection from Knott Road to Ferguson Road** – This neighborhood collector connection aligns with Magnolia Lane, as previously shown. The intersection with Knott Road is located near the Bowman Club. This location optimizes sight distance and is responsive to topography in the area.

- **Raintree Drive** – A right in/right out/left in intersection is recommended to improve safety, given the limited sight distance in this area. At the north end of Raintree Drive, the northbound vehicular connection would be made. The southbound connection would be limited to pedestrians, bicycles, and emergency access to minimize cut through traffic and turning movements on Knott Road.

- **Local street connection from Knott Road to the 15th Street Opportunity Area** – This two-lane local street is recommended to organize circulation within the neighborhood, provide an option to use 15th Street for local trips, and serve adjacent development. The intersection is placed to create separation from the 15th Street/Knott Road roundabout and adequate sight distance to the east.

- **Other framework local streets and connections** – The framework local streets shown on the street plan are illustrative of future connectivity. The arrows indicate currently stubbed streets that would be connected in future development plans.

**Trails**

The Trails Concept is coordinated with the Street Concept and addresses pedestrian and bicycle needs previously documented for the study area. It includes:

- Paved multi-use trails along all new and existing arterial and collector streets.

- Implementation of the Bend Park and Recreation District’s (BPRD) High Desert Park Trail, which connects the future middle and high schools and the future Alpenglow Park on SE 15th Street to High Desert Middle School, the future High Desert Park site, and Rickard Road to the east.

- Trails connecting High Desert Middle School to adjacent properties.

- A portion of the TransCanada Trail, a major regional trail, which runs through the High Desert Park Site. Two potential undercrossing for the trail are shown on 27th Street and Knott Road.
• Connections to existing trails in The Bridges development and along the Central Oregon Irrigation Canal.

• Connections to planned trails in the BPRD Comprehensive Plan, including the Arnold Canal Trail and the 15th Street Trail.

• All local streets will be developed to include low-stress bicycle facilities and sidewalks.

Next Steps to Further Develop the Plan Concepts

SEAPAC Meeting 4 (May 2) – SEAPAC will discuss the concepts and direct follow-up work by the project team

SEAPAC Meeting 5 (June 6) – SEAPAC will review and discuss the second versions or “V2s” of the concepts, along with additional plan concepts (e.g. parks and schools, open space and natural resources).

Community Workshop (July 11) – The plan concepts will be shared with the broader community in a hands-on workshop, coupled with an on-line workshop.
Principles for Walkable Neighborhoods:

- New development creates recognizable neighborhoods with distinct identities.
- There is a robust network of sidewalk and trail connections within and between neighborhoods.
- Parks and schools are easily accessible for all neighborhoods by a network of safe, comfortable pedestrian connections.
- Neighborhoods provide walkable access to services, shopping, and other destinations.
- Open spaces, natural areas (such as significant trees and rock outcrops) and wildlife habitat and corridors are preserved where possible.

1/4 mile / 5-minute walking radius

Future Walkable Neighborhoods
EXAMPLES OF WALKABLE NEIGHBORHOODS

NORTHWEST CROSSING
Bend, OR

SUNNYSIDE VILLAGE
Happy Valley, OR
Residential

Standard Density
- NW High Lakes Loop

Medium Density
- Nova Loop

High Density
- Westridge Avenue

Mixed Employment

- NW Mount Washington Drive
- NW Charbonneau Street

- NW Galveston Avenue
- NW Labiche Lane
- NW Crossing Drive
- Archie Briggs Road
- NW York Drive

LAND USE PRECEDENTS
LAND USE PRECEDENTS
**LAND USE CONCEPT**

**SHEET 1 - EXISTING PLAN DESIGNATIONS AND PROPOSED REFINEMENT AREAS**

**Draft Refinements:**

1. Rotate existing RS designation perpendicular to Cabin Lane, adjacent to existing residential land uses. Extend ME designation west along property line.

2. Change existing IG designation to IL to remove split zone and better align with recommendations from the Market Analysis.

3. Shift CG designation to fill the southern 12 acres of the parcel, adjacent to Knott Road. Consider adding RH adjacent to the CG at 15th Street and Knott Road.

4. Redesignate northern corner of school property to CG to create a neighborhood shopping center with frontage on 27th Street.

5. See Sheet 2 for options.
Transitions Toolbox:

This map shows potential Transition Areas where the code could require use of treatments to promote compatibility between land uses. One or more of the following treatments would be used to buffer between different land uses in these areas:

- Street
- Multi-use path
- Landscaping
- Additional setback
- Natural feature
- Alley
**Transportation Issues:**

- Traffic on Knott Road and 27th Street exceeds the posted speed limit.
- Limited sight distance due to two ridges on Knott Road creates safety concerns, particularly for turning movements around Raintree Drive.
- Existing arterials and collectors need to be upgraded to the City’s urban standards, including construction of sidewalks and bike lanes.
- Need for new east-west and north-south collectors running through the area to support new neighborhoods and connect 15th Street to Knott Road, Ferguson Road, and 27th Street.
- Steep topography and basalt rock outcrops may present challenges for new road construction.
- Future collectors should, where possible, follow lot lines and limit impacts to future development.
Notes:

1. Proposed east-west collector alignment provides an additional connection from 15th Street east to 27th Street and avoids areas with steepest topography and the TransCanada pipeline.

2. Proposed north-south neighborhood collector extends south from Ferguson Road at Magnolia Lane and connects to Knott Road west of the High Desert Park site.

3. Possible roundabout locations mitigate high-speed issues throughout the area and improve turning movements at intersections.

4. A network of framework local streets provide low-volume connections through neighborhoods.

5. Proposed right-in/right-out/left-in intersection concept at Raintree Drive and Knott Road improves safety of turning movements in the sight distance limited area.
**Trail Principles:**

- Paved multi-use trails are recreational and also serve an important role in providing low-stress active transportation options.
- A robust network of trails and pedestrian crossings will provide safe, comfortable pedestrian and bicycle access to key destinations such as parks and schools.
- New trails will be developed to fit with the natural landscape, and where possible, preserve significant natural features such as trees and rock outcrops and wildlife corridors.
- The multi-use trail network is supported by the sidewalk network on low-stress low-volume framework local streets.
- Where possible, trails will connect to the larger regional trail network.