

**BYLAW NUMBER 01-826
TOWN OF TURNER VALLEY**

BEING A BYLAW OF THE TOWN OF TURNER VALLEY, IN THE PROVINCE OF ALBERTA WHICH PROVIDES FOR THE GATEWAYS OF TURNER VALLEY AREA STRUCTURE PLAN.

WHEREAS, Section 633 of the Municipal Government Act, Statutes of Alberta 1994, Chapter M-26.1 provides that a Council of a Municipality may adopt an Area Structure Plan which provides a framework for subsequent subdivision and development of an area of land within its Municipal boundaries; and

WHEREAS, Council of the Town of Turner Valley in the Province of Alberta (hereinafter called Council) did direct the preparation of an Area Structure Plan for certain lands situated in the South ½ of Section 6, Township 20, Range 2, W5M, and

WHEREAS, an Area Structure Plan has been prepared by PAL Developments Ltd, Walker Newby and Partners Inc., and

NOW THEREFORE, Council enacts as follows:

1. This Bylaw may be cited as the "The Gateways of Turner Valley Area Structure Plan".
2. The Gateways of Turner Valley Area Structure Plan attached hereto is hereby adopted as the Area Structure Plan for the subject lands.
3. This Bylaw comes into full force and effect upon third and final reading.

READ a first time this 19th day of March 2001.

READ a second time this 16th day of April, 2001.

READ a third time and finally passed this 18th day of June, 2001.

Marjorie Straub
Deputy Mayor

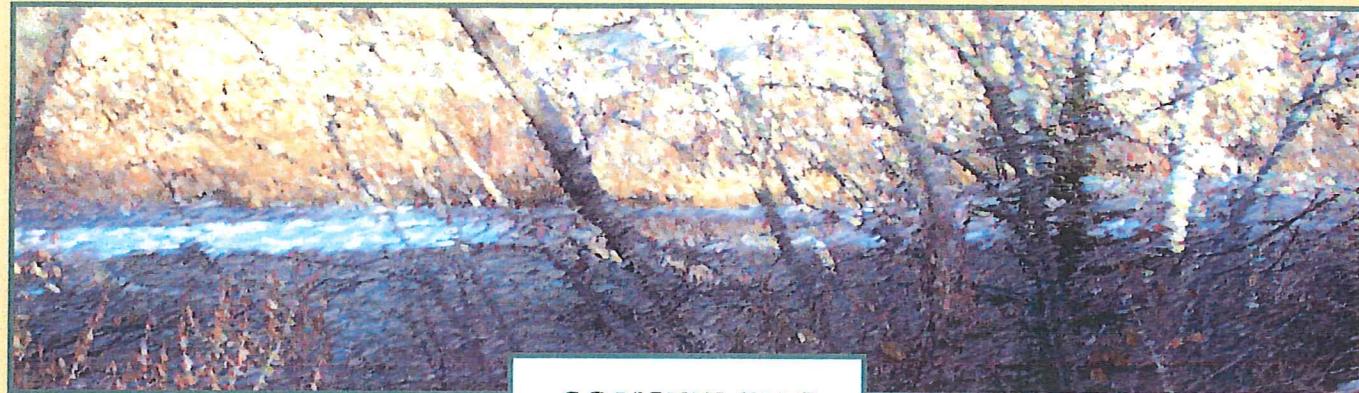
John V. Vargha
Chief Administrative Officer

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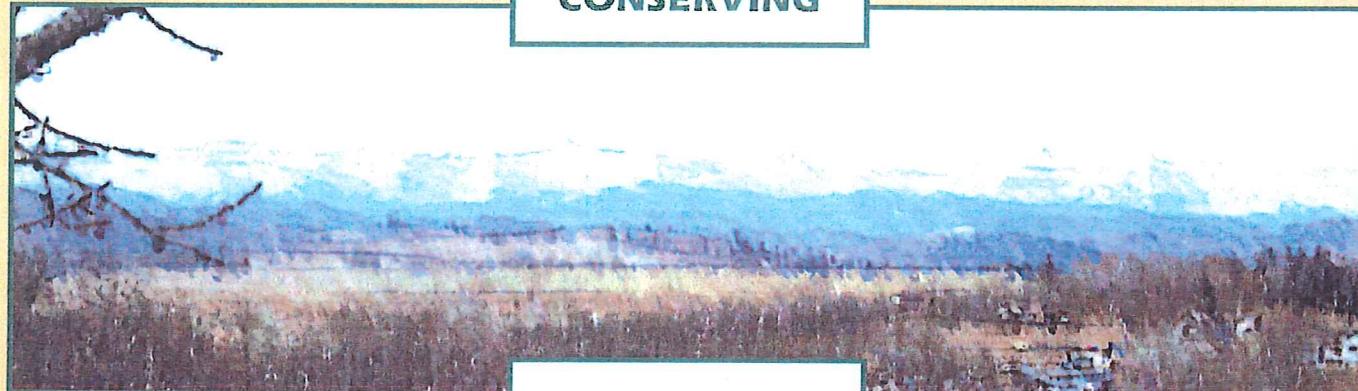
THE GATEWAYS OF TURNER VALLEY AREA STRUCTURE PLAN

Town of Turner Valley

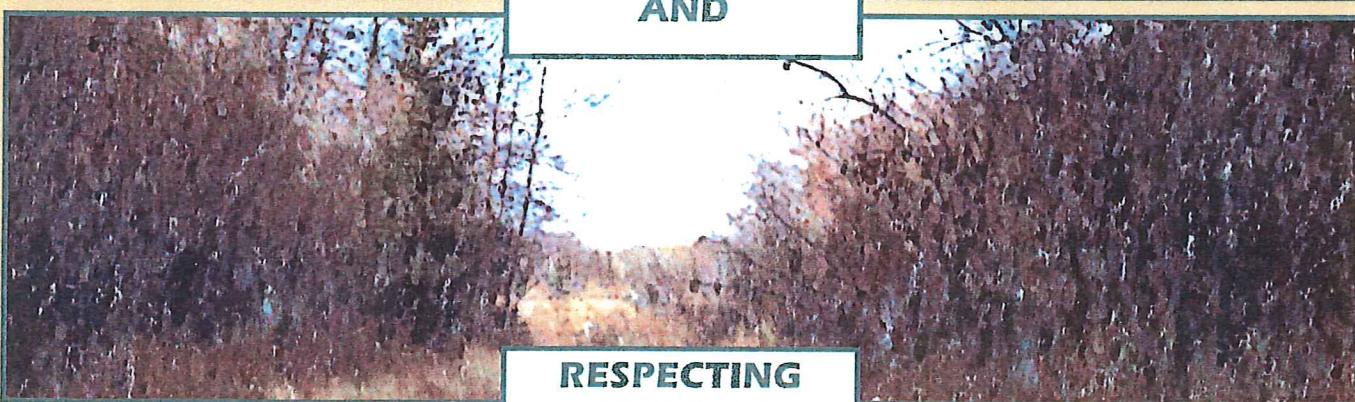
Revised June 2001



CONSERVING



AND



**RESPECTING
NATURE**

Prepared at the request and in cooperation with

The Town of Turner Valley
KANA GATEWAY Developments Ltd.

Prepared by
PAL Developments Ltd.
Walker Newby and Partners Inc.

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1.0 INTRODUCTION

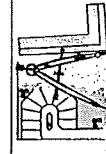
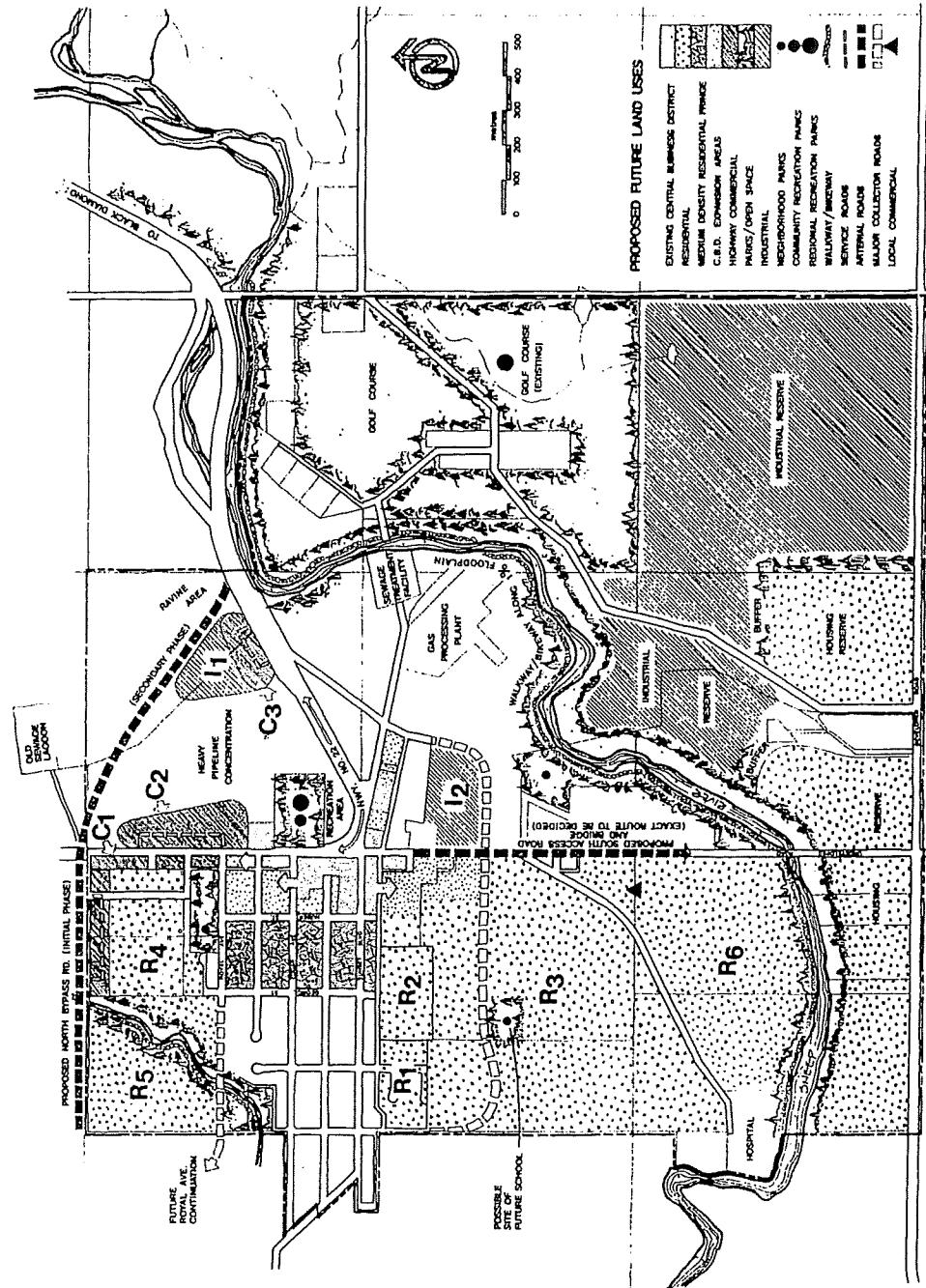
The plan for the Gateways of Turner Valley Area Structure Plan falls within the South 1/2 of Section 6 Township 20, Range 2, W5M and contains approximately 108.01 ha/266.89 ac. The subject lands are located in the southeast corner of the Town of Turner Valley and are noted on the location plan attached as Figure 1.

These lands are wholly owned by KanaGateway Developments Ltd., which commenced conceptual planning for the site in 1999. Prior to this, the subject lands were identified within the long-range land use plans within the 1980 Turner Valley General Municipal Plan (GMP). In particular,

- Residential development was identified on Figure 4 of the long-range land use plan (attached as Exhibit 1) for the area immediately east of the Decalta Road containing a relatively small site with the balance of these lands being identified for Industrial Reserve.
- Lands located west of Decalta Road were also noted as Industrial Reserve with a portion of residential development west of Bailey Hill (existing residential development).

To date, there has been no development proposed on these lands by other developers or the Town of Turner Valley. At this time, it is recognized by both the Town and the Developer that the GMP is over 20 years old and therefore in need of updating. It is now the intent of Town Council to have an Area Structure Plan put in place for the entire 108.01 ha/266.89 ac Plan area to ensure that development will occur in an orderly and efficient manner.

figure four long range land use plan



2.0 PURPOSE OF THE GATEWAYS OF TURNER VALLEY AREA STRUCTURE PLAN

The Turner Valley GMP deals with issues pertaining to the future growth and development of the municipality as a whole and it was hoped that council would continue to promote the development of additional oil and gas related industries, as well as actively encourage other types of industry to locate in the Town. However, industrial demand in this area, specifically on the subject lands, has not occurred in the past two decades.

The Gateways of Turner Valley ASP deals specifically with the southeast sector of the community as outlined in Figure 2 - Aerial Photo. This ASP will provide policy direction and design guidelines for the area using the policies for residential development contained within the GMP as a guide. It is apparent that these lands are unique in that they are heavily covered with a variety of vegetative cover and would thus be better suited for residential as opposed to industrial development.

The preparation of this ASP is a process guided by Section 633 of the Municipal Government Act (MGA). The MGA identifies Area Structure Plans as having "... the purpose of providing a framework for subsequent subdivision and development of an area of land". As a statutory document, this ASP requires adoption by Town Council.

Other planning documents, both statutory and otherwise, have had an impact on the preparation of this document. This ASP seeks to accomplish the purposes and intent of the MGA by addressing the following objectives:

- Ensuring that the ASP development area conforms to the residential policies, goals and objectives of the GMP.
- Providing a framework for future development within the Plan area by describing future land use patterns, transportation networks, and public utility systems.
- Outlining a phasing plan through the identification of development cells in order to allow development to occur in logical stages and phases.
- Describing the population density proposed for the Plan area.

3.0 SITE ANALYSIS

3.1 NATURAL ENVIRONMENT

3.1.1 TOPOGRAPHY

The subject lands can be described as gently sloping from the southwest by Decalta Road to the northeast corner of the property. For the most part, the lands are within a 0 to 15% slope condition with a few minor exceptions related to existing pond areas. The elevation difference from the southwest to the northeast is approximately 16.0m (1.0%).

East of Decalta Road there is a strip of escarpment lands that end abruptly on a plateau area. The area west of Decalta Road is relatively flat with a difference in elevation of 8.0 m (1.3 %) from north to south. A second escarpment strip running north-south, with slopes exceeding 33%, defines the drop to the Sheep River basin and defines the flood plain as well as the flood risk boundary. (See Figure 3 - Slope Analysis Plan and Figure 4 - Contour Interval Plan).

3.1.2 SOILS AND VEGETATION

The West Development Area consists of an organic layer ranging from 0.3m-1.0m in thickness. Underlying the organic area is a 0.0m to 0.7m thick layer of silty clay overlaying a coarse silty gravel layer. A siltstone and shale bedrock was encountered at depths ranging from 2.0m to 3.3 m in depth, with groundwater being encountered at depths of 2.10m to 2.40m. Slope stability analysis for slopes along the western and eastern edge of the development area exceeding a grade of 15% will be completed at the time of development to determine appropriate building setbacks.

The East Development Area consists of an organic layer ranging in thickness from 0.15m to 0.450m. Underlying this is a generally damp, very stiff high plastic clay layer. The high plastic clay ranges from 0 to 2.20m in thickness. Below the clay layers is a silty clay till and gravel layer ranging from 0.6m to 3.0m below the ground surface. Groundwater readings varied from 3.80m below ground surface to no groundwater present at 9.0m depth.

To alleviate concerns of the high plastic clays, perforated weeping tile drains and proper surface grading will be required to provide adequate drainage of water away from all structures.

3.1.3 VEGETATION

The majority of the site east of Decalta Road is covered with a mixture of willows (buck brush), aspen, and some significant fir trees. The west side of Decalta Road also contains significant growth much the same as that on the east side, but with more open spaces throughout. (See Figure 5 -Constraints and Opportunities). One goal during development of these lands will be to maintain as much of the existing vegetation as possible.

3.1.4 HISTORICAL RESOURCES

Bison Historical Services Ltd. completed an Historical Resources Overview (HRO) of the proposed residential subdivision. The proposed development falls entirely within lands with high to moderate observed site densities and high to moderate potential for heritage resources. Previously identified heritage resource sites are known to lie nearby.

Two heritage sites, EdPn 47 and EePn 81, lie within or adjacent to the proposed development and are likely to be impacted. One provincially registered site is immediately adjacent to the proposed development. This site, EdPn 46, is identified as an historic period homestead. The Canadian Federal Government has declared the Turner Valley Oilfields Gas Plant and Wellsites a National Historic Site. This site (EePn 79) lies on the north flats of the Sheep River, directly north of the proposed development (Archaeological Survey of Alberta 1996). However, no designated Significant Resource Sites will be impacted by the proposed development.

An Historical Resources Impact Assessment is recommended in connection with the proposed development. This work program will be conducted in conjunction with each subsequent phase of subdivision.

3.2 LAND OWNERSHIP

The Gateways of Turner Valley ASP lands are owned largely by KanaGateway Developments Ltd. under:

- C. of T. 001 215 236+25
- C. of T. 981 392 564+1
- C. of T. 981 392 564

The above noted Certificates of Title encompass 108.01 ha/266.89ac.

The east side lands are bisected with a right-of-way that contains a series of pipelines, which are owned by an assortment of gas companies. The west side contains a series of easements and/or rights-of-ways, some of these have been abandoned or removed, whereas others are active and have thus been incorporated into the design of this ASP. The status of these gas lines alters as time progresses and as ownership of the line change. Any future plans of subdivision need to acknowledge these gas lines and ensure that up-to-date information is provided on the status of all gas lines impacted by the proposed subdivision.

3.3 EXISTING AND ADJACENT DEVELOPMENT

The existing and adjacent developments are depicted in Figures 1 and 2 attached. Single detached housing is the only existing residential development located in the southwest area at Decalta Road and 16th Avenue, which is known as Bailey Hill. A newer single-family residential development has begun west of Bailey Hill and is known as Bailey Ridge.

The lands to the east and south of the subject lands are either void of residential development, or contain a couple of country residential homes on acreages specifically to the south and outside of the existing Town limits.

The existing Turner Valley Golf Course extends along the entire north boundary of the ASP.

4.0 LAND USE CONCEPT

4.1 PLAN AND POLICIES

The Gateways of Turner Valley concept plan is shown on Figure 6 - Land Use Plan, as prepared for the entire ASP Lands. The Concept Plan recognizes the constraints and opportunities as defined in Sections 3 and 4. The concept shows generalized land uses within the whole plan concentrating on residential and commercial uses, open space network, a school site and road (collector) layout. The Gateways will be developed with each cell of development noting the extensive vegetative cover (natural), which will impact the design layout and the need therefore to provide a master landscape plan for each cell of subdivision.

The landscape plan shall note the tree and shrub cover for each phase of subdivision and shall ensure that where practical, every effort will be made to incorporate the natural growth and features into the design.

Based on the comprehensive open space system as shown on Figure 6 and Figure 12 the developer shall provide a interconnected open space system of trails throughout the Gateways which will take advantage of the natural site characteristics and the stormwater management facilities (wetlands and naturalized wetponds), to be located in neighborhoods one, two and three.

Open space dedication shall be based on the minimum 10% dedication of all lands to be developed less environmental lands, road widening and storm water management areas.

4.2 GENERAL DEVELOPMENT

The following policies shall apply to all development, which may occur in the Plan area. Their purpose is to ensure that development will conform to other statutory planning documents, such as the Town's General Municipal Plan and Land Use By-Law. They also require that any proposed development will take into consideration the development constraints associated with the subject lands.

1. Any subdivision and / or development activity, which occurs within the Plan area, shall conform to the Town of Turner Valley's General Municipal Plan and Land Use By-Law.
2. Proposed development shall take into consideration existing sour gas facilities, and those wells that have been abandoned. The developer shall be responsible for:
 - Accurately locating existing sour gas pipelines and wells, and wells that have been abandoned.
 - Ensuring that abandoned sour gas wells have been capped in accordance with current EUB well abandonment procedures and that such wells will not pose a threat to public safety.
3. The Developer shall enter into a Development Agreement with the Town of Turner Valley with each phase of subdivision.
4. Floodplain and escarpment conditions within the Gateways of Turner Valley and their related setbacks will be determined through geotechnical investigations at time of subdivision.

4.3 RESIDENTIAL

Low-density residential development in the form of single detached dwelling units will be the predominant form of housing within the Plan area. Provision will be made for a number of medium density sites, semi-detached, fourplex or row housing and villas which could be accommodated in a number of locations throughout The Gateways based on market conditions at time of development.

The following policies shall be applied to residential development occurring within the study area boundaries.

1. Future residential development shall be located in a manner that is consistent with Figure 6.

2. Single detached dwelling units shall be the predominant form of residential development, however a variety of housing types - such as semi-detached dwelling units - may be allowed in order to address the needs of a variety of age groups, income groups, and lifestyles.
3. Residential development shall not exceed the maximum density requirement of 13.6 dwelling units per gross developable hectare (5.5 dwelling units per gross developable acre). Population densities for residential development should be calculated by using a figure of 2.7 persons per dwelling unit.
4. Residential development within the study area shall be fully serviced with the municipal water, sanitary sewer, and stormwater management systems.
5. Lanes will not be incorporated into the design unless deemed necessary based on a site specific multiple dwelling complex. Utility servicing within The Gateways shall be via front streets or through the open space system as applies to storm water management.
6. Walkways or trails shall be provided to the satisfaction of Council or its designated approving authorities in order to ensure access to, and the continuation of pedestrian and open space circulation systems.
7. Future residential development shall incorporate a tree planting and landscaping program, including but not limited to such things as street tree planting and boulevard landscaping. This program will form part of the development agreement between the Town and Developer.
8. Exterior finishes in residential areas, massing of building types and square footage, number of floors and landscaping requirements shall be part of overall Architectural Controls to be provided by the Developer.
9. Buffer strips shall be provided between Medium Density Residential and Low-Density Residential development to the satisfaction of Council or its designated approving

authorities. Such buffering may incorporate such features as tree planting, soft landscaping, earth berming and utilization of existing vegetative cover.

10. Phasing of the Gateways of Turner Valley shall be generally in accordance with Figure 7, which in turn shall be governed by ease of servicing both off and on-site.

4.4 COMMERCIAL

Provision has been made for commercial development within the Plan area. The site as shown on Figure 6, would be appropriate for "neighborhood commercial" uses, such as convenience store / gas bar, or confectionery.

The following policies shall apply to commercial development within the Plan area.

1. The location of any proposed commercial development should conform to Figure 6.
2. Commercial development occurring within the study area shall recognize the Central Business District as being the Town's major and dominant commercial center.
3. Parking and Landscaping shall be provided in accordance with the requirements of the Land Use By-Law.
4. Buffer strips shall be provided between Commercial and Residential development to the satisfaction of Council or its designated approving authorities. Such buffering may incorporate such features as tree planting, soft landscaping and earth berming.
5. Commercial development shall be of a high quality, both in terms of visual appearance and building materials, as well as quality of workmanship. Commercial development shall not be detrimental to adjacent development.

4.5 OPEN SPACE

An interconnected open space system - is provided throughout the three neighborhoods as is shown on Figure 9. At the time of subdivision, Municipal and Environmental Reserves will be determined and dedicated adjacent to the Sheep River and where storm water

management facilities (wetlands and naturalized wetponds) are located. Such an open space configuration will lend itself to the development of a recreational pathway system.

The following policies shall apply to Open Space within the Plan area.

1. Environmental Reserve shall be dedicated on the Sheep River flood way as per the flood risk boundary shown on Figure 8, and shall be subject to the approval of both Town and Alberta Environment.
2. In order to provide for the recreational needs of the public, the dedication of reserve lands, (10%), shall be required at the time of subdivision.
3. Development of a pathway system (interconnected) on reserve lands shall be encouraged and may form part of a Development Agreement between the Town and Developer.
4. In order to ensure the continuity of an overall open space system, walkways and linkages shall be provided to the satisfaction of Council or its designated approving authorities.
5. Approximately 5 tot lots should be provided within the Plan Area. The following criteria should be used as a guide to determine size and location of tot lots:
 1. all residential lots should be within 300 m walking distance of a tot lot;
 2. tot lots should not be less than 0.1 ha in size and should not be larger than 0.8 ha; and
 3. the site in the Plan identified as a future school is considered a suitable location for a tot lot.
6. Lands proposed as dry ponds for storm water management may be considered as partial or full credit Municipal Reserve parcels. The amount of credit that such lands will receive will be determined by the Town taking into consideration the size, shape and grading of the parcel and its overall utility as a park space.

7. Lands proposed as wet ponds for storm water management should be designated as Public Utility Lots.
8. A \pm 10 acre (4.04 ha) school site has been identified adjacent to 16th Avenue for future school development.

4.6 PHASING

Figure 7 - Staging Plan, defines cells of development which are logically tied to sequential development, ease of servicing and economic viability. Stage 1 encompassed lands on the upper plateau that are parallel to the existing access road (Decalta) and that also parallel Imperial Drive.

5.0 UTILITY INFRASTRUCTURE

5.1 TRANSPORTATION

5.1.1 DAILY TRAFFIC VOLUMES

Daily traffic volumes were generated based on the estimated number of dwelling units within the Area Structure Plan. Stage 3 is considered as the best location for multi-unit housing based on the transportation network and has accordingly been added to the daily traffic volumes.

The Gateways of Turner Valley area structure plan has been design in accordance with transportation road volume criteria and are within acceptable limits. All internal collector roads are under 5,000 vehicles per day. Decalta Road to the north is anticipated to carry 7,800 vehicles per day. These AADT volumes are shown in the attached Figure 9.

5.1.2 INTERNAL ROAD REQUIREMENTS

Two-way daily traffic volumes on a roadway help determine its road classification. Based on City of Calgary and Transportation of Canada (TAC) standards, the following is a guideline for sizing roads based on road capacity:

Residential Roadway:	AADT <1,000 vpd
Collector Roadway:	AADT 1,000 to 5,000 vpd
Primary Collector:	AADT 5,000 to 10,000 vpd

As shown in Figure 9, only 16th Avenue will be designated as a primary collector roadway. This will not be a concern since plans are already in place to have 16th Avenue widened. All other roads inside the proposed development do not need to be designed to a standard any higher than a collector roadway.

5.1.3 INTERSECTION PERFORMANCE

The operational performance of four intersections in the vicinity of the proposed community was analyzed to determine the impact of development traffic on the existing road network. The four intersections analyzed include:

- Main Street & Highway 22
- Main Street & Decalta Road
- Decalta Road & Imperial Drive
- Decalta Road & 16th Avenue

For 2000 background conditions, the unsignalized intersection of Main Street & Highway 22 performs at a Level of Service C in both the morning and afternoon peak hours. All other unsignalized intersections perform at a Level of Service A in the morning and afternoon peak hour.

The 2010 background traffic volumes were determined using an average annual growth rate of 3.0%. For 2010 background conditions (without the development), the intersection of Main Street & Highway 22 performs at a Level of Service E for both the morning and afternoon peak hours. The addition of a westbound right turn lane and southbound left turn lane are recommended at this point. The geometric improvements improve the intersection performance to a Level of Service C. All other intersections continue to perform at a Level of Service A.

For 2010 combined conditions, the unsignalized intersection of Main Street & Highway 22 fails in both the morning and afternoon peak hour. At build-out, the development accounts for 30% of the volume at this intersection. The signal warrant score of 104 points confirms the need for signalization. It is estimated that signals will be required when the development is 40% complete and background volumes have increased. The other three unsignalized intersections do not require improvements as they all perform at a Level of Service B for the morning and afternoon peak hours.

5.1.4 EAST BOUNDARY ROAD ALLOWANCE

Prior to submission, consideration and approval of a subdivision phase in close proximity to the undeveloped road allowance along the east boundary of the Plan Area, the long-term

use and development of this right of way shall be determined taking into consideration, among other issues:

- Prospects for annexation; and
- The overall transportation network and the need for a north-south connecting road at this location.

5.1.5 ACCESS DESIGN

Three accesses allow entrance into the proposed community – one from the west off of Decalta Road, and two from the south off of 16th Avenue. The accesses are well spaced from each other and intersect the main roads at clearly visible locations. With more than 200 metres spacing between the access intersection to the subject lands and the next internal intersection, all intersections have sufficient intersection spacing. The traffic circle into Stage 4 reduces potential turning vehicle conflicts.

At the approval stage of each development, the access configuration and development traffic volumes should be reviewed to ensure that they will operate within acceptable parameters.

5.2 WATER SUPPLY

Potable water for the proposed development will be supplied from Turner Valley's existing water supply system. The east side of Turner Valley is currently serviced via a single 300mm water main under the Sheep River. This main then splits into two 150mm water mains to supply water to both the Bailey Ridge and Royalite Subdivisions.

The 1993 Infrastructure Study identified that the existing water system to the east side of Sheep River is unable to meet fire fighting demand requirements and recommended a second feed to provide a looped water supply system to the area. A second water trunkmain river crossing below the Royalite subdivision and upgrading of the existing 150mm water main along Imperial Drive to Bailey Ridge is recommended to provide a looped system to improve the reliability, efficiency and fire protection for the east side of Turner Valley.

The existing water treatment system has a service capacity of 2800 people with an ultimate capacity of approximately 3500 people. The existing water reservoir has a capacity of 500,000 emp. gals, which is sufficient to service a population of approximately 3200 people.

Water pressures within the proposed development range from 50 to 70 psi on the upper bench and 80 to 90 psi on the lower bench. Pressure is controlled via a pressure-reducing valve (PRV) on the 300mm water main within the existing pump station.

Based on the projected population of 3400 people for the proposed ASP area, the area will have a projected water average day demand of 350,000igpd and a maximum day demand of 875,000igpd. To address existing system shortfalls and to meet the site's ultimate demands and fire fighting requirements, the Town's water supply, storage and distribution systems will require upgrading.

Distribution mains throughout the development will service the proposed development area. The distribution system will be looped and sized to provide reliable water supply to meet the ultimate demand and fire fighting requirements. Mains will be installed within the road or utility rights-of-way according to the Town of Turner Valley design standards. Detailed drawings will be supplied to the Town for approval for each phase of development. Locations of existing and proposed facilities are shown on Figure 10.

5.3 SANITARY SEWER

There is an existing 200mm sanitary sewer along Imperial Drive that services the Bailey Ridge and Royalite Subdivision. The area on the east side of the Sheep River is currently serviced via a 100mm (4") siphon below the Royalite Subdivision across the Sheep River to the Towns main lift station, which pumps wastewater via the Westend Regional Sewage Trunkmain to Black Diamond.

The Town has been experiencing problems with the 100mm siphon and is proposing a new sanitary lift station below the Royalite Subdivision to alleviate these problems. This station will have an ultimate capacity to service a portion of the proposed ASP development area.

Due to topography, a gravity sanitary sewer will be unable to service the lower development area, Neighborhood 1. A lift station will be required to convey wastewater from the lower area to the Imperial Drive sanitary sewer line.

The northwesterly portion of Neighborhood 2 (Phase 1) would be serviced by a gravity sewer system. The sewer would parallel the east property line of Diamond Valley Villas, within an easement on the Golf Course property, and connect to the existing sanitary sewer on Imperial Drive.

Neighborhood 3 and the southeastern portion of Neighborhood 2 will ultimately require a sanitary sewer extension to the Westend Regional Sewage Trunkmain. This extension would be constructed within the existing road right-of-way along the east side of the Golf Course. A temporary lift station would be installed to provide interim servicing of Phase 2 through the Phase 1 gravity sewer. This lift station would be removed when the gravity sewer extension is completed.

Internal site servicing will be by a gravity sanitary collection system, with the mains generally contained within road rights-of-way. Depending on topography sewer mains within easements may be periodically required. Trunk mains, lift station, force mains and collection mains will be designed to the Town of Turner Valley standards. Design drawings will be submitted for approval for each phase of development.

Locations of existing and proposed sewage collection facilities are shown on Figure 11.

5.4 SHALLOW UTILITIES

Shallow utilities consisting of gas, electrical and telecommunications are supplied directly by the utility companies. The companies will be provided with an overall development plan for the ASP from which they can develop their servicing schemes.

Shallow utility servicing of the development areas will be from existing shallow utilities within the Town of Turner Valley. Internal servicing of the developments within the site will be direct bury within the road rights-of-way. Any public utilities located on private property will be protected by easements or utility rights-of-way.

5.5 STORMWATER MANAGEMENT

Stormwater management plans that are progressive in nature and amount of detail will be developed for the site to minimize the risk of flooding and potential property damage and reduce impacts on the Sheep River as it is the ultimate receiving water body. A semi-rural conveyance system is envisioned that not only conveys and accommodates runoff up to and including a 1:100 year event but also provides enhanced water quality and added value by incorporating a wide variety of Best Management Practices. The resulting "waterscaped" drainage system will be fully integrated in the overall landscaping and green linkages thus providing passive recreation and preservation of existing habitat and/or generation of new habitat.

The stormwater conveyance system will consist of swales and ditches; no storm sewer servicing is provided except for roadway culverts. Weeping tiles will drain onto the surface via sump pumps. Short sections of standard road and curb gutters will drain clusters of development into the swales that will convey the runoff to a system of evenly distributed and linked stormwater management facilities. These facilities will consist of wetlands and/or naturalized wet ponds.

Stormwater facilities will be dedicated as Public Utility Lots (PUL) to the 1:100 high water level and will be exempt from acreage assessments. Locations of and the linkages between the proposed major stormwater management facilities are shown on Figure 12. The area taken up by the stormwater management facilities amounts to about 5.13 ha or 4.88 % of the overall area. With this percentage, adequate water quality enhancement will be provided while safeguarding the long-term sustainability of the facilities. In addition, public safety will be preserved by keeping the maximum fluctuation in water levels to about 1 metre during severe storm events.

Virtually no stormwater conveyance or stormwater management facilities currently exist to service the area. A temporary, overland flow channel transects the extreme southwest corner of the area, draining the under construction Bailey Ridge development to a self-contained depression. As part of the stormwater management plan for the area west of Decalta Road, a stormwater management facility will be implemented at the bottom of the hill to accommodate the runoff from Bailey Ridge. This facility will drain into the ditch along the main entranceway. This ditch, which will also accommodate the local runoff from

individual properties, will run to a second facility, which, in turn, will discharge to the Sheep River. This facility as well as the vegetation in the ditches will provide for water quality enhancement.

Two options are currently envisioned for the off-site drainage from the area east of Decalta Road to the Sheep River. The first option consists of the construction of a storm sewer from the extreme northeast corner of the site, north along the golf course. The second option consists of the construction of a lift station that pumps stormwater back to one of the facilities in the west half of the area. An overflow that can tie into the central facility, west of Imperial Drive, provides then the discharge to the Sheep River for extreme storm events. The benefit of this second option is that it allows for a constant flow through the stormwater management facilities thus refreshing the water, improving water quality and minimizing the risk of stagnant water.

A Master Drainage Plan will be prepared addressing the stormwater conveyance system; the location and type of stormwater management facilities; the location of outfall(s) to the Sheep River; the presence of Best Management Practices to enhance the water quality of the runoff discharged to the Sheep River; and erosion and sediment controls. Preliminary storage requirements and off-site discharge rates will be included. This document will be submitted to the Town of Turner Valley and Alberta Environment for approval. The stormwater conveyance system, stormwater management facilities and BMPs, storm sewer lift stations, and storm outfalls will be designed to Town of Turner Valley and Alberta Environment standards. Detailed drawings for servicing each development cell will be provided to the Town as part of the approval process. Drawings will be supported by detailed stormwater management reports or design briefs that detail the operation of any facilities or BMPs, and verify the operation of the drainage system versus Town and provincial guidelines.

6.0 IMPLEMENTATION

6.1 PLAN ADOPTION

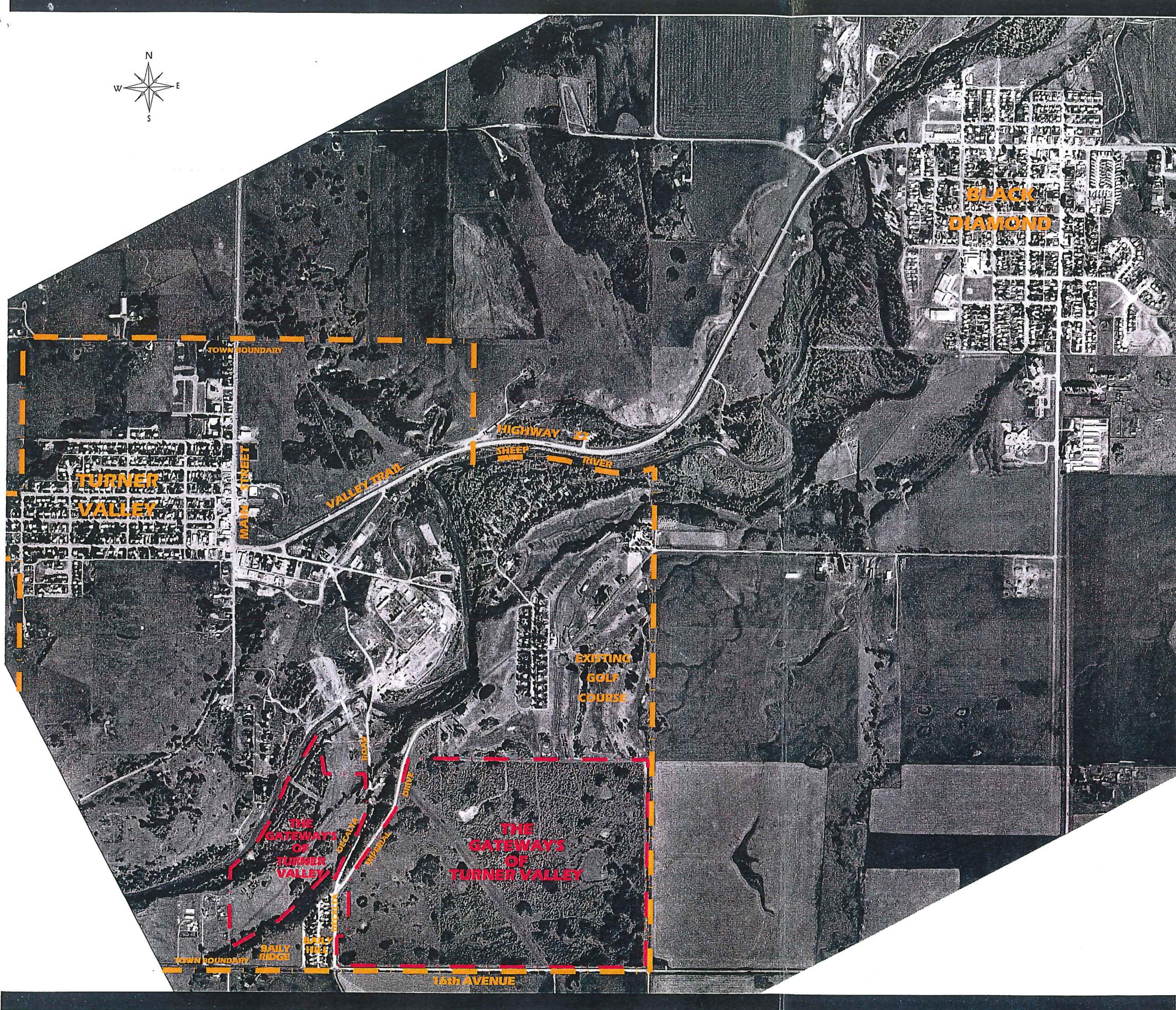
The Gateways of Turner Valley Area Structure Plan, passed in accordance with the Planning Act, shall become a statutory document of the Town of Turner Valley.

6.2 LAND USE BY-LAW AMENDMENTS

As Tentative Plans of subdivision are submitted within the Plan area, land use redesignations must conform to the general land uses outlined on Figure 6.

6.3 PLAN AMENDMENT

The purpose of the Gateways of Turner Valley Area Structure Plan is to provide a general framework for future subdivision and development. However, as future conditions and circumstances change, it may be necessary for Council to make amendments to the Plan.



LEGEND

TOWN OF TURNER VALLEY BOUNDARY

■ ■ ■ STUDY AREA BOUNDARY
(108.01 ha./266.89 ac.)

NO. 7350-103-01A.DWG

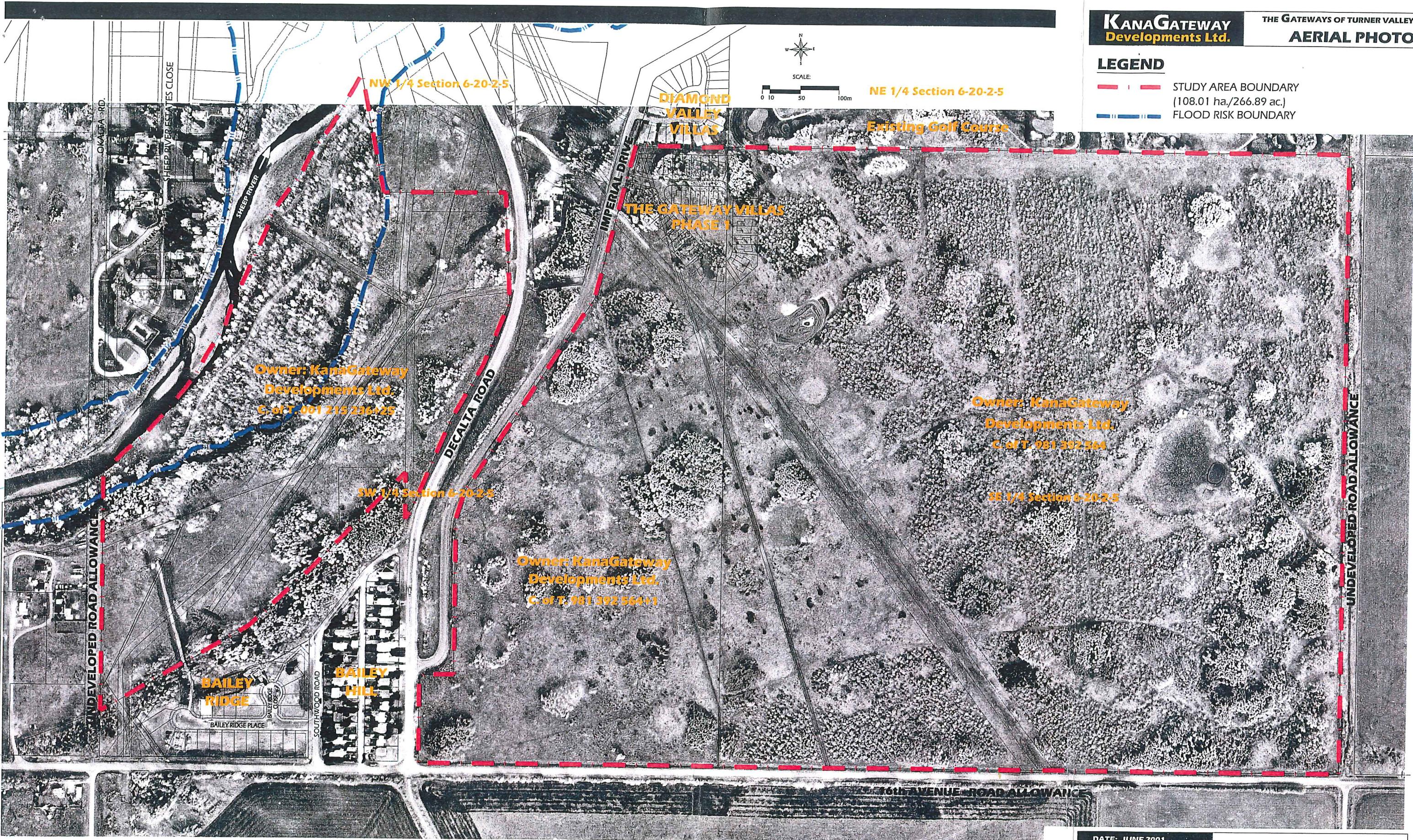
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FIGURE 1

LEGEND

- STUDY AREA BOUNDARY
(108.01 ha./266.89 ac.)
- FLOOD RISK BOUNDARY



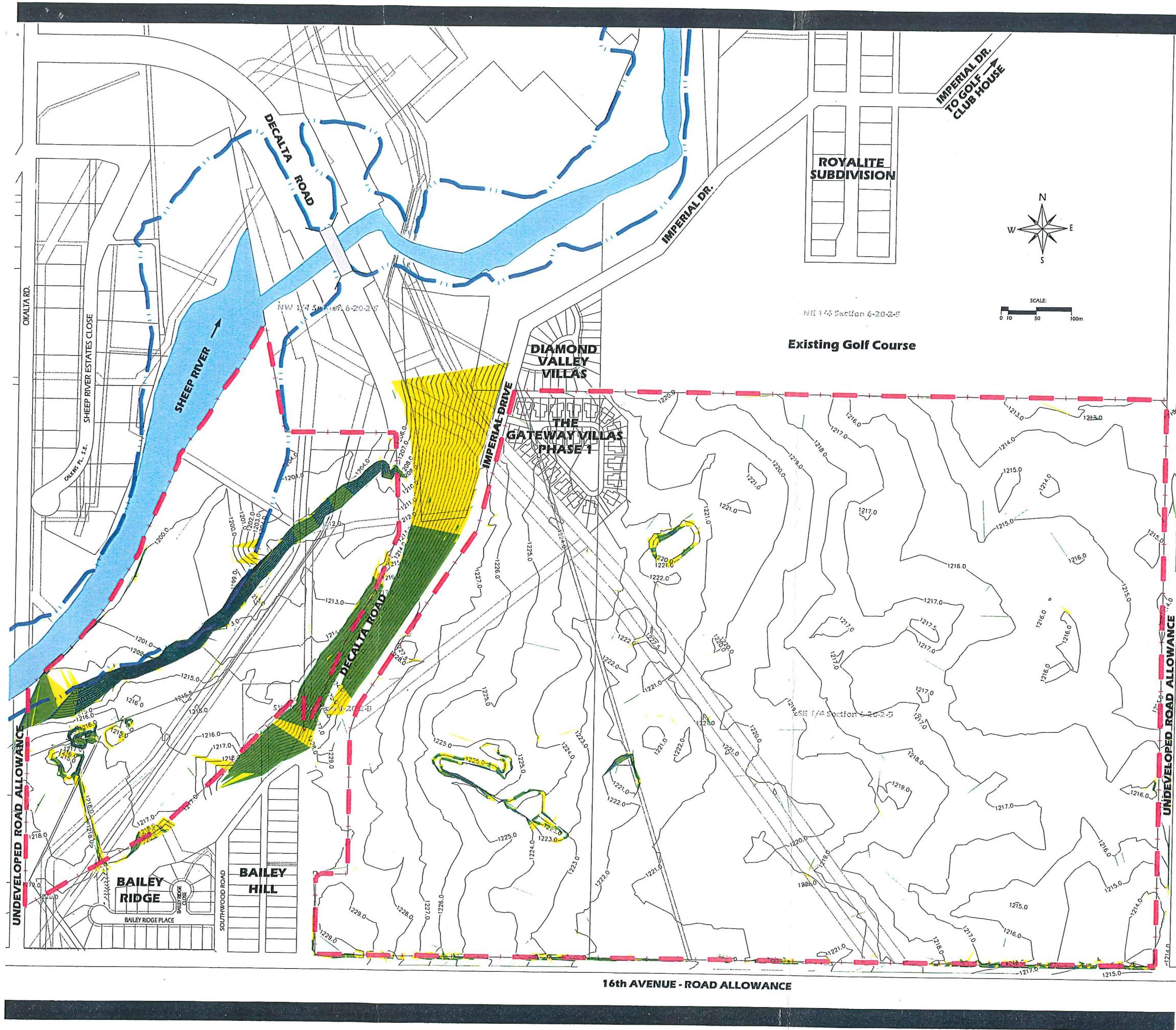
DATE: JUNE 2001

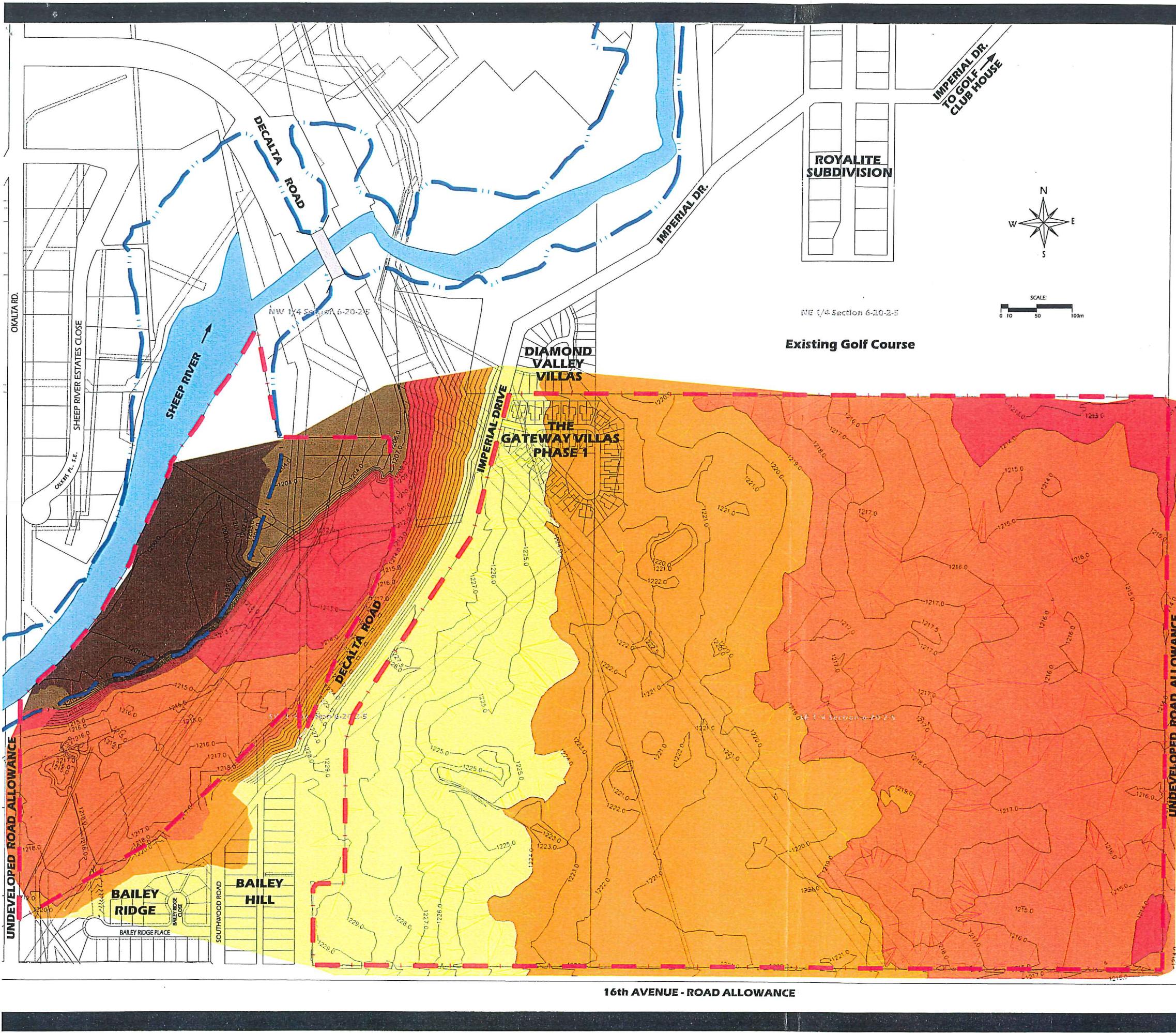
**WALKER
NEWBY**
PLANNERS
ENGINEERS
LEGAL SURVEY
STRATEGIES
CONCEPTS INTO COMMUNITIES

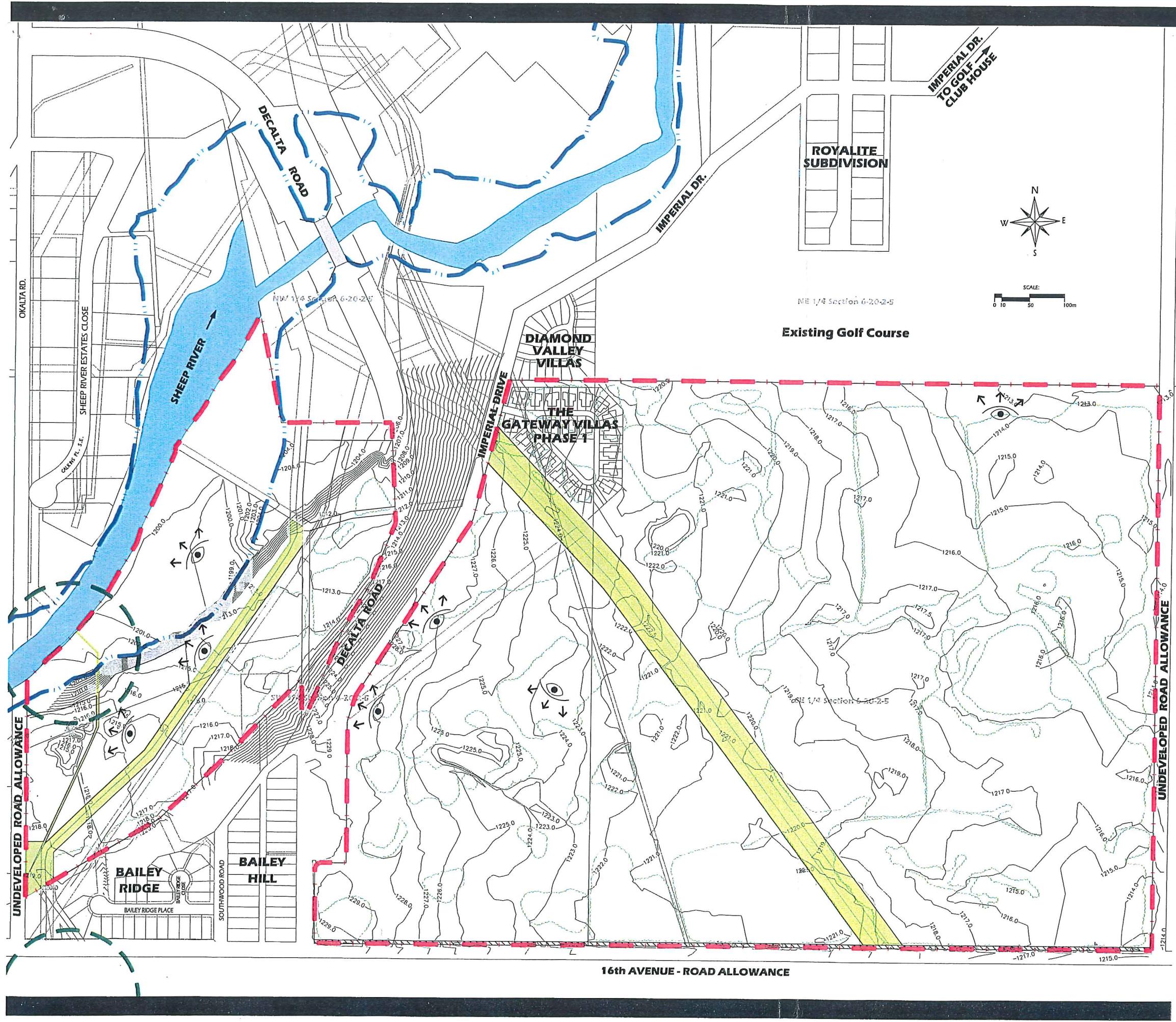


FILE NO. 7350-103-02A.DWG

FIGURE 2



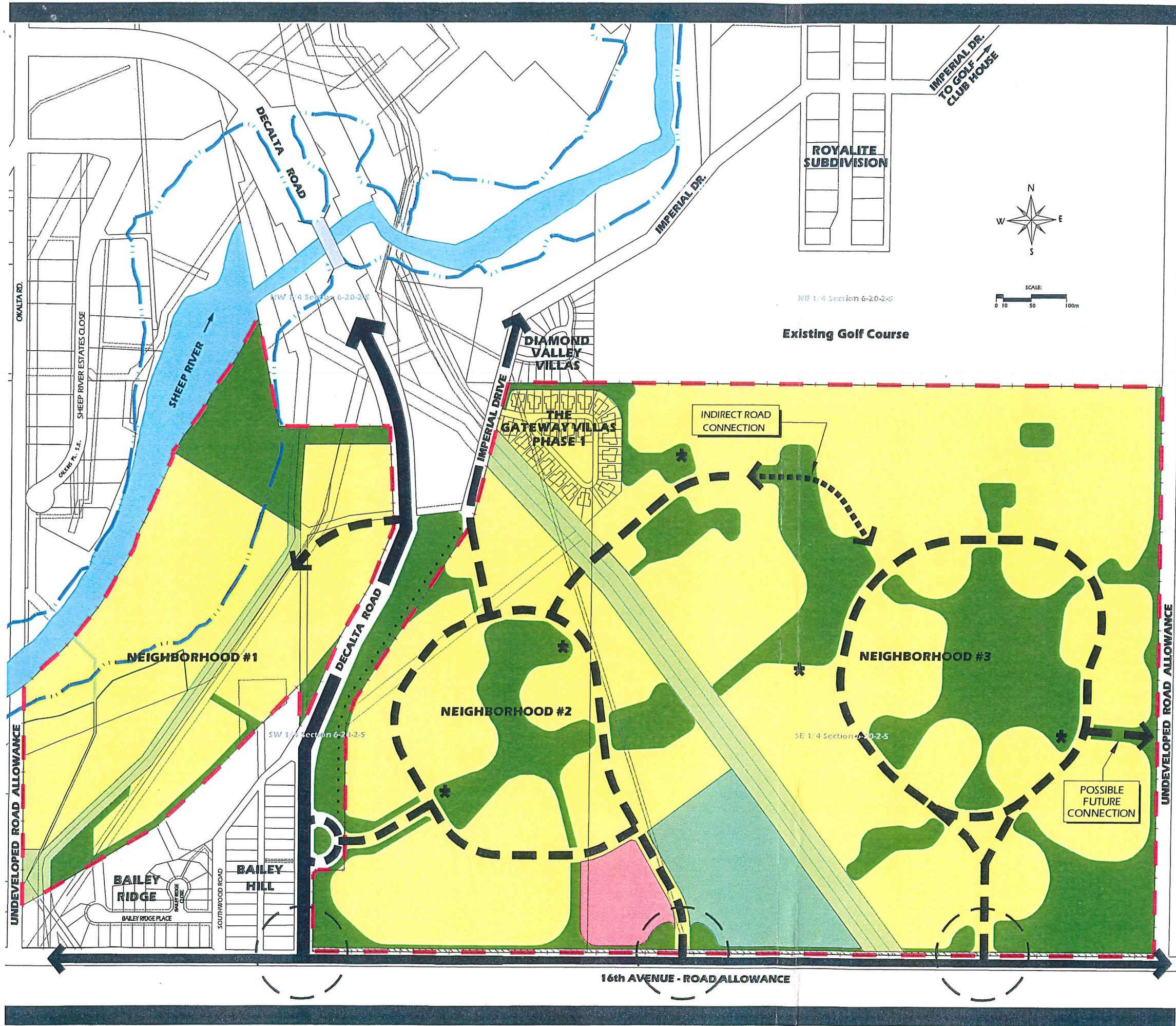




LEGEND

-  STUDY AREA BOUNDARY
(108.01 ha./266.89 ac.)
-  FLOOD RISK BOUNDARY
-  GAS WELL SETBACK
-  SIGNIFICANT VIEWS
-  EXISTING CONTOURS (1.0m Intervals)
-  EXISTING VEGETATION
-  EXISTING ACTIVE GAS LINE RIGHTS OF WAY
-  PROPOSED ROAD WIDENING (16th Avenue)

DATE: JUNE 2001

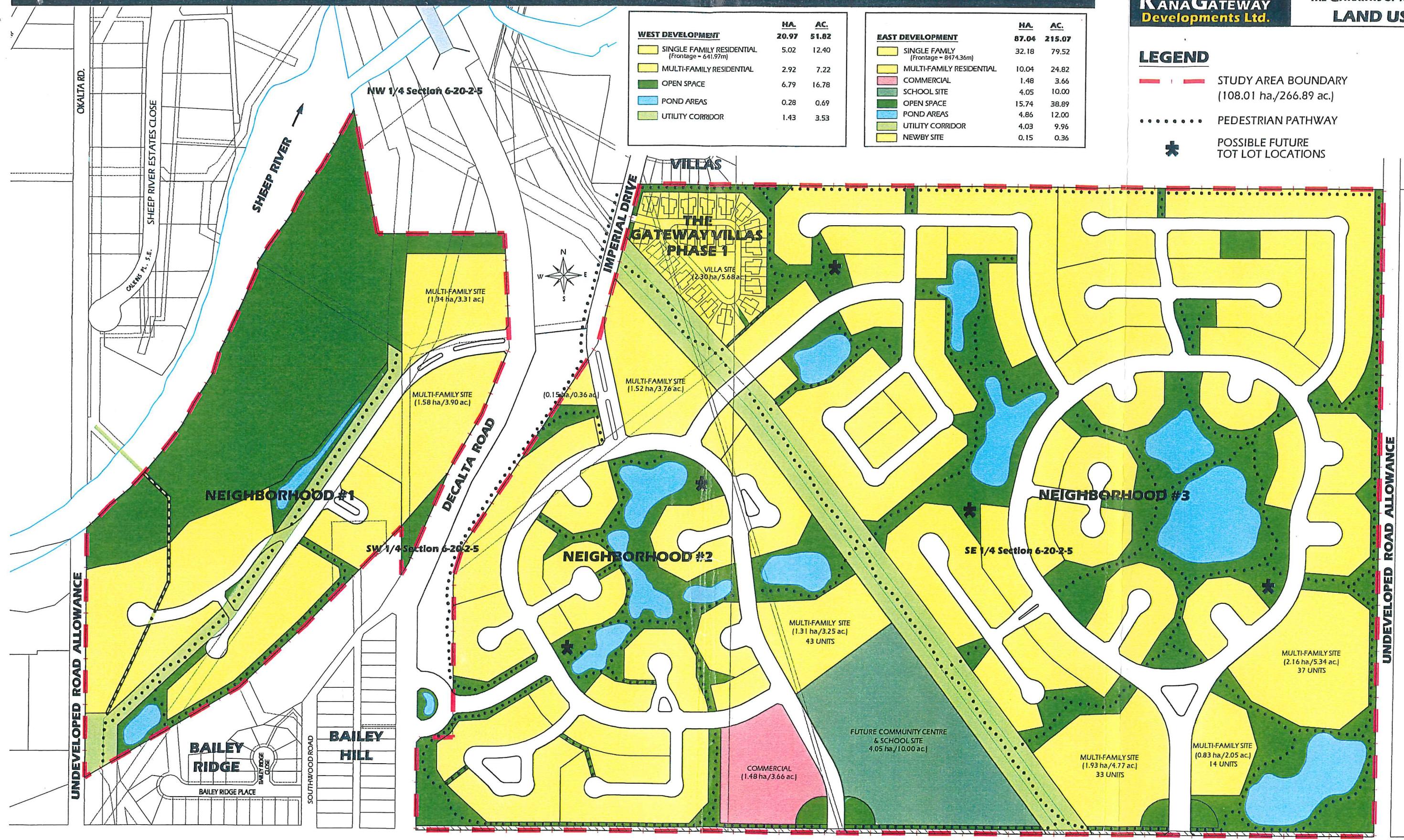


LEGEND

— STUDY AREA BOUNDARY
(108.01 ha/266.89 ac.)

• PEDESTRIAN PATHWAY

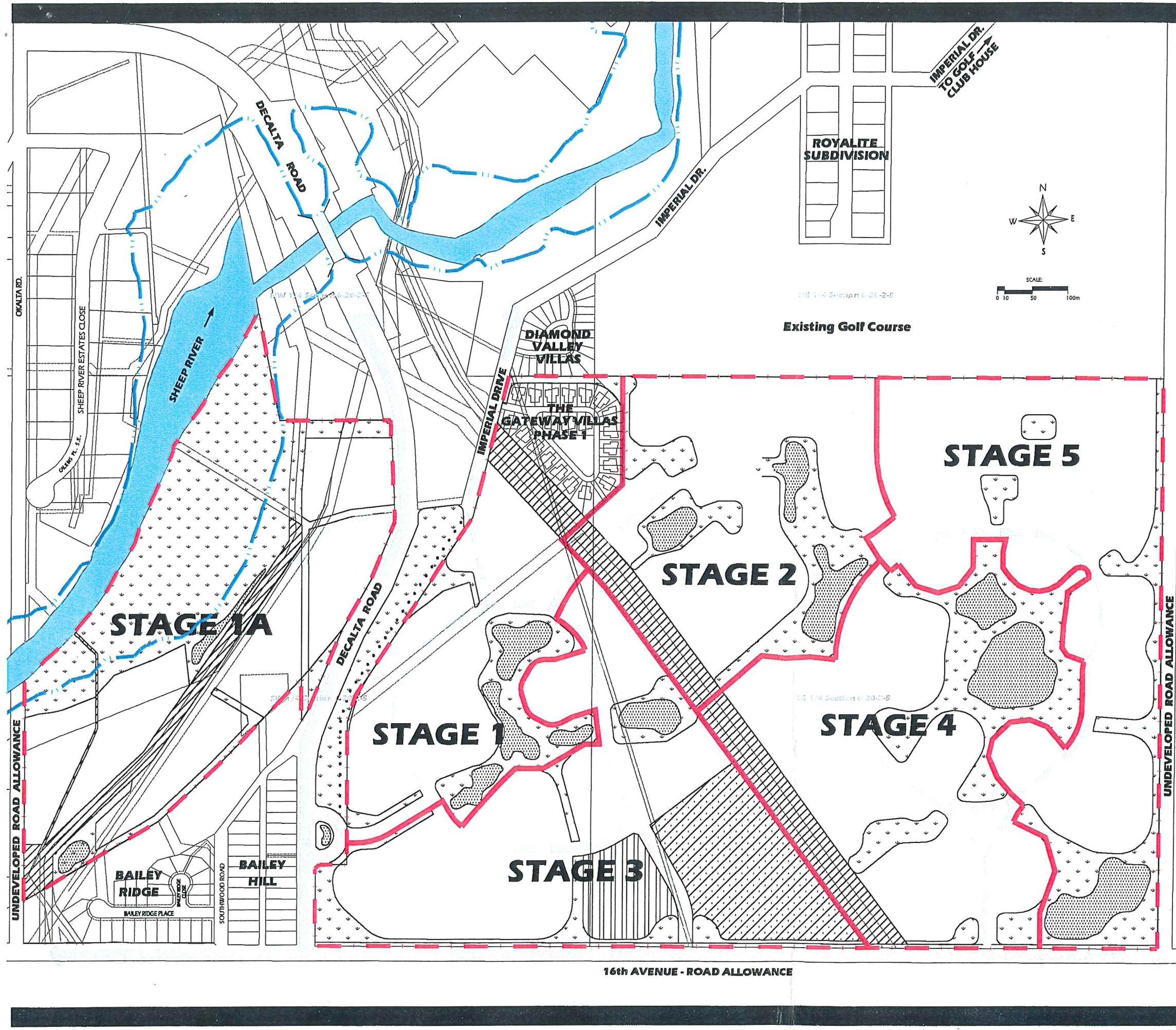
★ POSSIBLE FUTURE
TOT LOT LOCATIONS

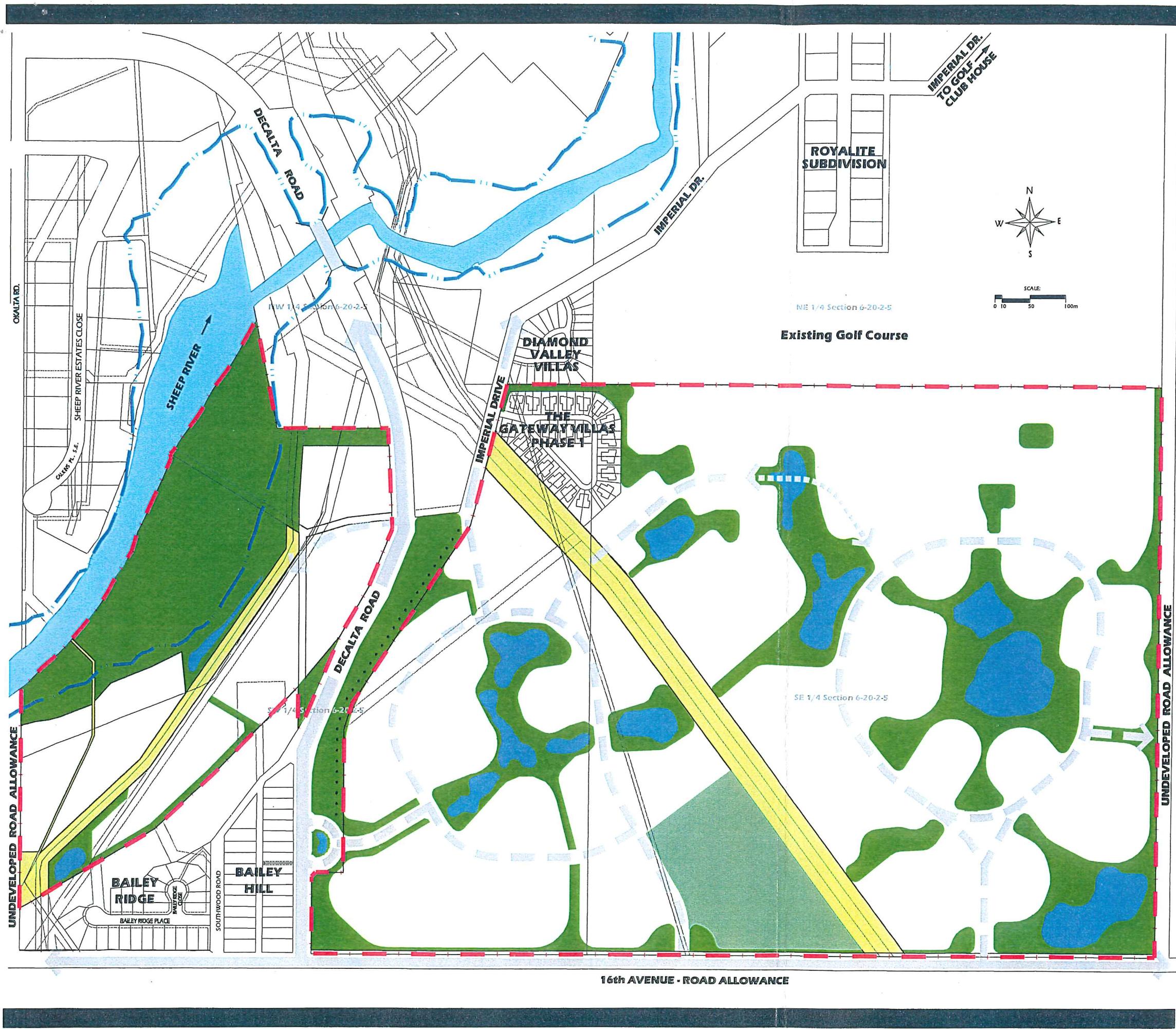


16th AVENUE - ROAD ALLOWANCE

DATE: JUNE 2001

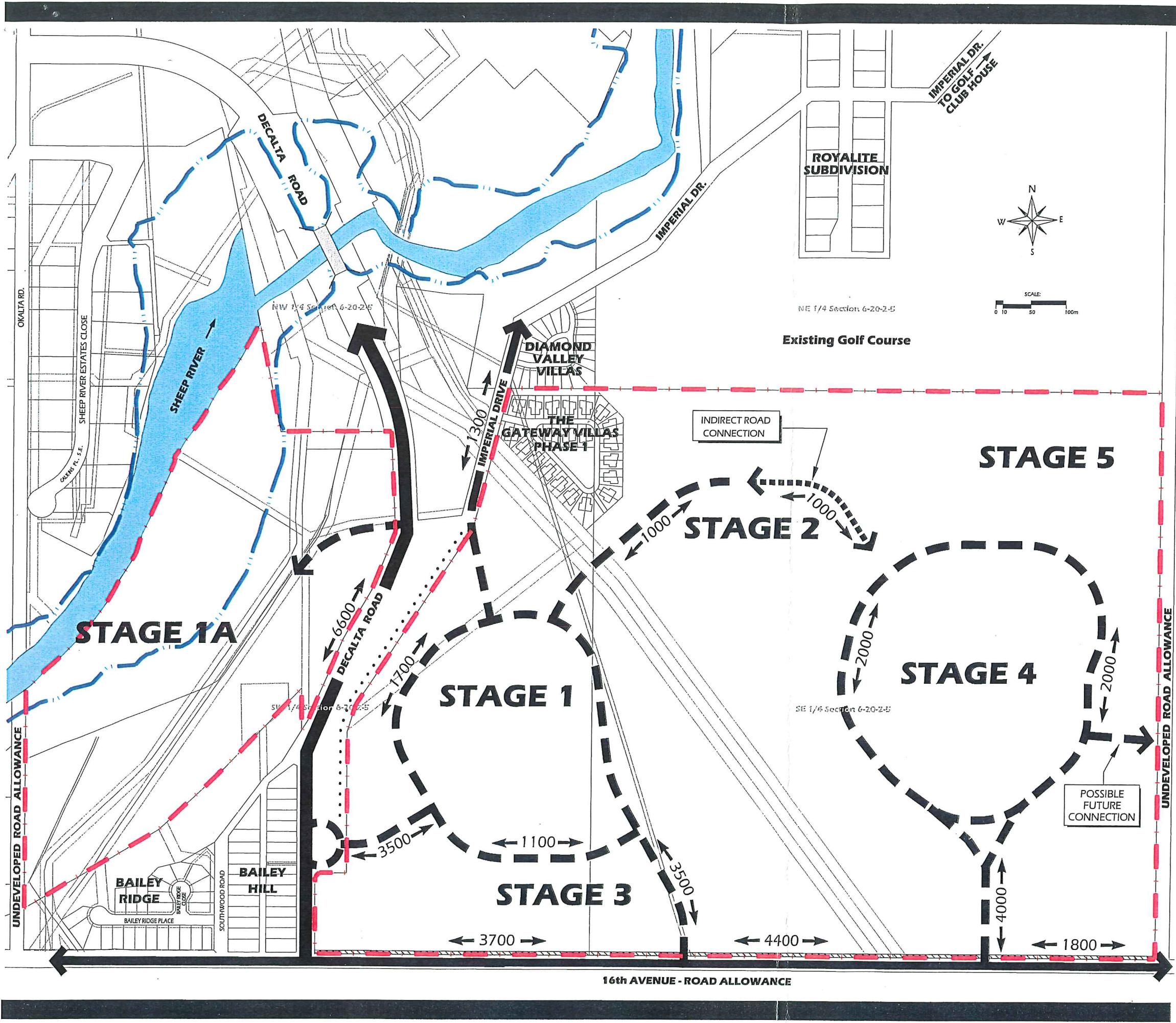
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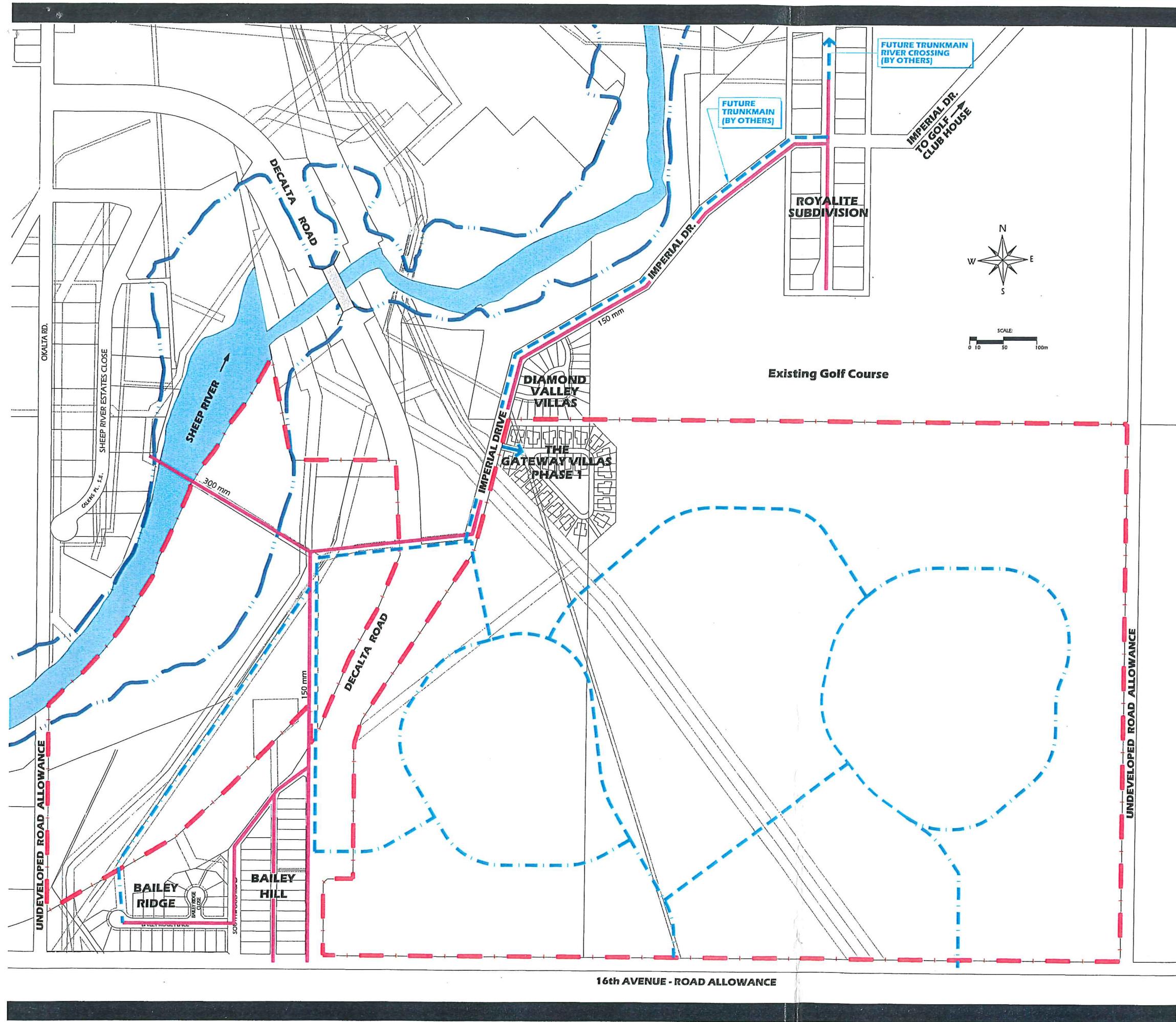




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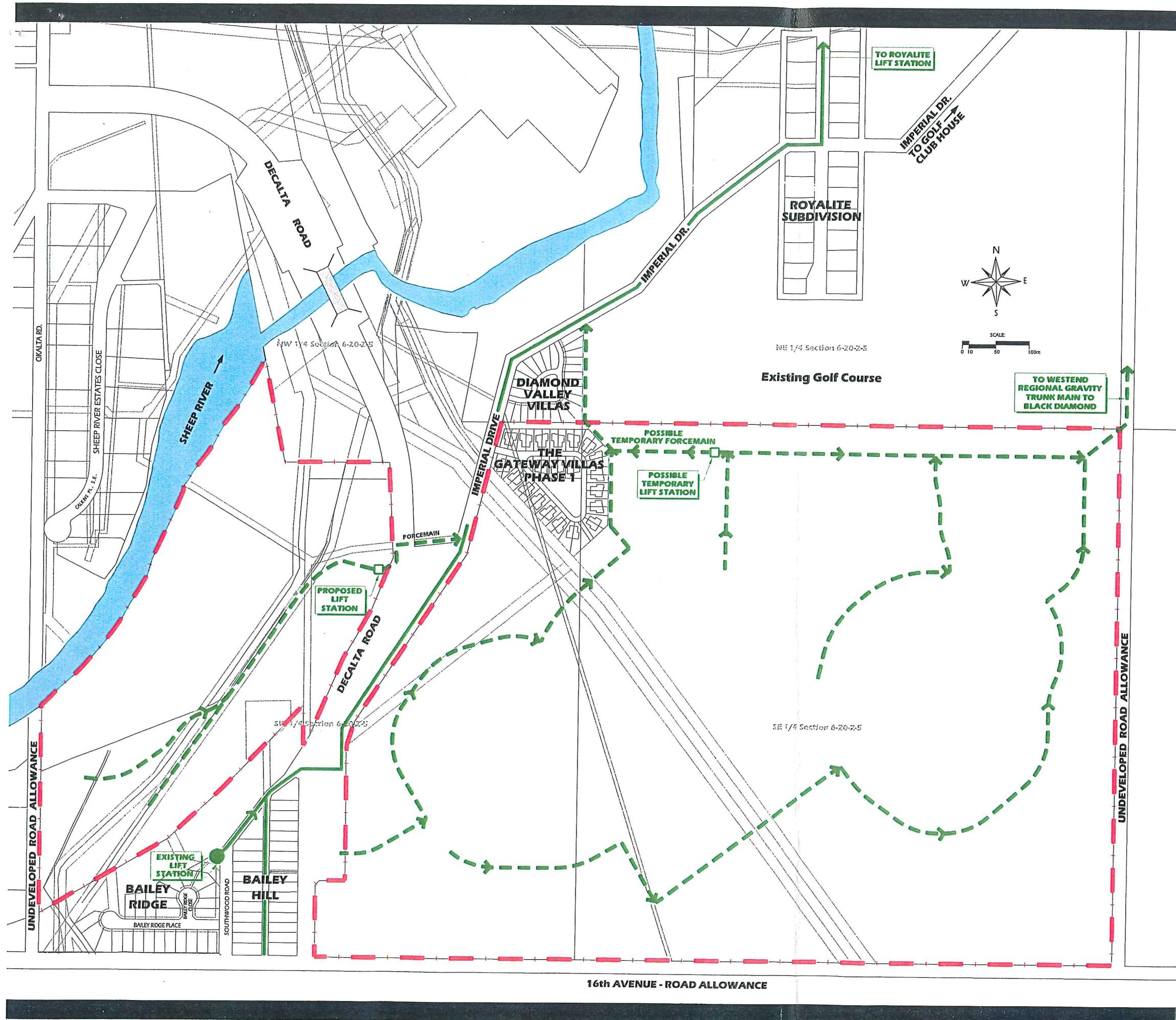
DATE: JUNE 2001





LEGEND

- STUDY AREA BOUNDARY (108.01 ha./266.89 ac.)
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING LIFT STATION
- PROPOSED SANITARY LIFT STATION



DATE: JUNE 2001

WALKER NEWBY
PLANNERS
ENGINEERS
LEGAL SURVEY
STRATEGIES
CONCEPTS INTO COMMUNITIES



FILE NO. 7350-103-011A.DWG

FIGURE 11

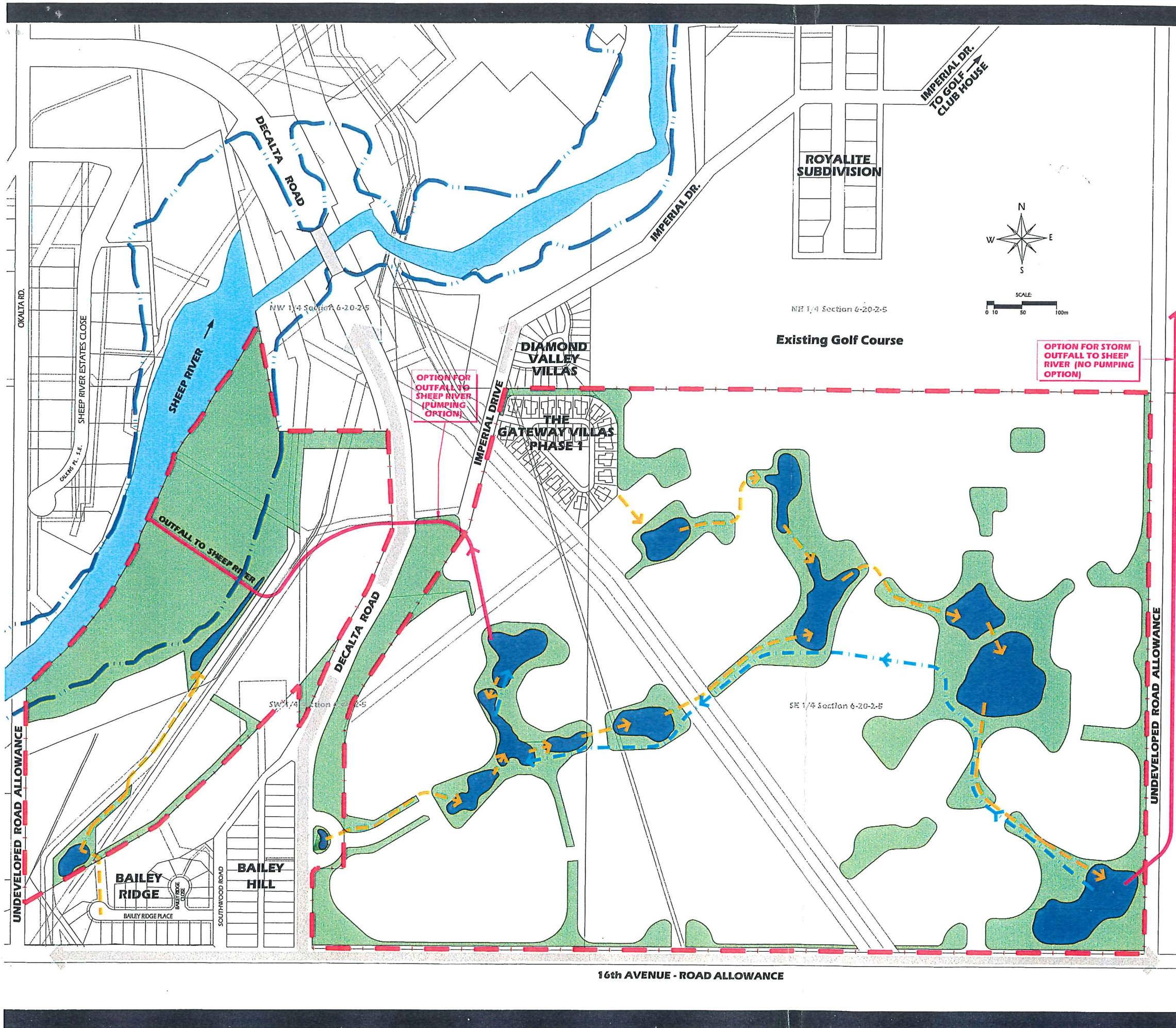


FIGURE 12

BYLAW 922-06
TOWN OF TURNER VALLEY

BEING A BYLAW OF THE TOWN OF TURNER VALLEY WHICH PROVIDES FOR AN AMENDMENT TO BYLAW NUMBER 01-826 CITED AS "THE GATEWAYS OF TURNER VALLEY AREA STRUCTURE PLAN".

WHEREAS

Section 633 of the Municipal Government Act M26.1, Revised Status of Alberta, 1998, provides that a Council of a Municipality may adopt an Area Structure Plan which provides a framework for subsequent subdivision and development of an area of land within its Municipal boundaries; and

WHEREAS

the Council of the Town of Turner Valley in the Province of Alberta (hereinafter called the Council) did direct the preparation of an Area Structure Plan for those lands situated in the South ½ of Section 6, Township 20, Range 2, W5M; and

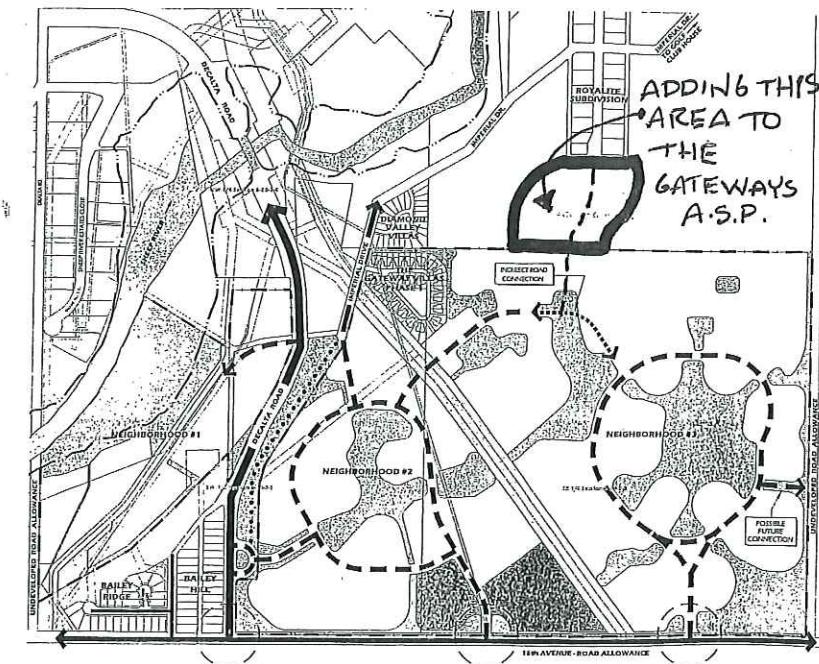
WHEREAS

an Area Structure Plan has been prepared under the direction of Council;

NOW THEREFORE

The Council hereby enacts as follows:

1. The Bylaw Number 01-826 cited as the "Gateways of Turner Valley Area Structure Plan" be amended by:
 - a) Adjusting the boundary of this Area Structure Plan by adding to its area the +/- 9.90 acres of lands lying directly north of it.
 - b) Adopting the "Addendum to the Gateways of Turner Valley Area Structure Plan", dated March 28, 2007, attached hereto as an addendum to the existing Area Structure Plan for the subject lands.
2. This Bylaw may be cited as the "Addendum to the Gateways of Turner Valley Area Structure Plan".



Note: Acreages/Hectares are approximate only and subject to verification through legal survey at time of subdivision.

THIS BYLAW comes into effect on the date of its **THIRD** and **FINAL READING**.

READ A FIRST TIME THIS 15TH DAY OF MAY, A.D. 2006

MAY

, A.D. 2006

~~MAJOR~~

TOWN MANAGER

READ A SECOND AND THIRD TIME THIS 16 DAY OF APRIL, A.D. 2007

Maggie Hank **MAYOR**

TOWN MANAGER

THE GATEWAYS OF TURNER VALLEY

AREA STRUCTURE PLAN

TOWN OF TURNER VALLEY

ADDENDUM

Town of Turner Valley By-law

Prepared by

PAL Development Ltd.

Prepared for

Turner Valley Golf and Country Club

In association with

KanaGateway Developments Ltd.

March 23, 2007

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Appendix

- Letters from iTrans Consulting and Westhoff Engineering Resources, Inc.
- Plate No. 1 Location Land, Ownership and Road Closure Plan
- Plate No. 2 Existing and Proposed Land-use
- Plate No. 3 Pedestrian Trails and Open Space
- Plate No. 4 Utility Plan
- Figure No. 1 – Addendum Land Use Plan
- Figure No. 2 Road network review – travel times and distances
- Figure No. 2A Road network review – travel times and distances
- Figure No. 3 Road network review – travel times and distances
- Figure No. 4 Road network review – travel times and distances
- Figure No. 5 Road network review – travel times and distances
- Figure 6 is the “original land use plan” for the Gateways of Turner Valley Area Structure Plan as approved prior to addendum revisions.
- Figures 7, (black and white), is taken from the original A.S.P. and shows the land use change superimposed on the plans as developed for this addendum, and also identify the revised Stages of Development.
- Figure No. 8 is the T.I.A. (Transportation Impact Assessment) Plan.

1.0 Introduction

1.1 History

The Addendum is an attachment to the existing approved statutory plan, “The Gateways of Turner Valley Area Structure Plan” and as identified in section 6.0 Implementation, it may be necessary for Council to make amendments to the plan.

The events, which resulted in this Addendum being prepared, are as follows:

- A section of Imperial Drive located north of the Diamond Valley Villas was identified with slope instability condition (*GEO-Engineering (M.S.T.) Ltd. – October 2006*).
- This section of Imperial Drive is projected to have 1300 vehicles per day traveling on it once the Gateway ASP area is fully developed (*The Gateways of Turner Valley Area Structure Plan – February 2001*).
- The Town of Turner Valley intends to resolve the problem of slope stability problem along this section of Imperial Drive. Several options exist:

Option #1

Repair the slope and enable continued vehicular use of Imperial Drive (up to 1300 vehicles per day). The slope would require immediate repairs and may require additional ongoing maintenance in the future.

Option #2

Relocate the road surface and utilities away from the slope within the existing road allowance.

Option #3

Close this section of Imperial Drive to traffic, including backfilling the existing 14th Hole pond, which would improve the drainage in the immediate area. This would still require relocation of existing utilities.

- The Golf Club expressed interest in the closure of this section of Imperial Drive, as it crosses the fairway of hole #14. The Golf Club feels that the present condition presents a safety issue for vehicles and pedestrians, and furthermore, that this problem will become even more of a concern as the community continues to grow and as traffic increases in this area.

Based on the above, KanaGateway Developments Ltd. was approached by Turner Valley Golf and Country Club to prepare a plan which incorporated holes #15 and #16, and a land exchange agreement to provide a ±9.9 Ac. (±4.0 ha.) parcel in exchange for holes #15 and #16. KanaGateway Developments Ltd. would have a contiguous parcel to develop for residential purposed extending south from the ±9.9 Ac. (±4.0 ha.) parcel to the Utility Corridor Right-of-Way. In addition the plan proposes closure of Imperial Drive to regular traffic (Option #3 above), which provides a cost-effective solution to both the slope stability problem and the safety issue surrounding the 14th hole.

This plan would create the following:

- Royalite Subdivision and Old Town would become “quasi private” communities based on Imperial drive closures.
- Improvements to the drainage and positive impacts on the slope stability area along Imperial Drive.
- Eliminates golf course concerns such as pedestrian and vehicular safety.
- Would enhance the golf course over time.

These changes, however, constitute a revision to the approved Area Structure Plan and are the subject of this addendum.

1.2 Purpose

This addendum impacts lands identified within sections 1.3 and 1.4. The balance of policies and objectives within the original approved Area Structure Plan are still applicable.

The purpose of the Gateways of Turner Valley Area Structure Plan Addendum is to provide a conceptual land use plan and infrastructure servicing design to support the revision to the existing A.S.P. related to residential and golf course design at the north end of the KanaGateway Developments Ltd. lands.

The A.S.P. addendum provides the policy framework to guide the development of the Gateways of Turner Valley and specifically addresses:

- Land use by Type, size and location
- Transportation network and update to the existing transportation impact assessment
- Conceptual underground services plan
- General location of amenities
- Sequence of development
- Storm water Management overview
- Other development issues specific to the area

This A.S.P. Addendum establishes the planning context for future planning and development decisions for the Outline Plan, construction of urban services and development permits for future individual properties. This A.S.P. Addendum is reflective of Section 633 of the Municipal Government Act.

1.3 Location and Area

The lands subject to this A.S.P. Addendum are situated in the southeast portion of the Town of Turner Valley. The A.S.P. Addendum is linear in shape and contains (± 9.9 acres) ± 4.0 hectares south of the Royalite Subdivision and extending south to the northerly limit of the KanaGateway’s property.

The second pod of land is a continuation of the first (± 9.9 acres) ± 4.0 hectares pod and extends south to the utility corridor right of way and contains (± 20.7 acres) ± 8.5 hectares. The lands

subject to this A.S.P. Addendum are situated in the north portion of the S.E. $\frac{1}{4}$ 6-20-2-5 and the south portion of the N.E. $\frac{1}{4}$ 6-20-2-5.

To the west and east of the second pod are proposed golf course holes 15 and 16 containing (± 11.9 acres) ± 4.8 hectares and (± 14.6 acres) ± 5.9 hectares respectively (see Plate No. 1).

This A.S.P. Addendum area comprises approximately (± 57.5 acres) ± 23.3 hectares of developable land for golf course and residential purposes. The only additional acreage added to the original A.S.P. is ± 4.0 hectares (± 9.9 acres) located south of the Royalite Subdivision within the N.E. $\frac{1}{4}$ of section 6-20-2-5.

*Note: All acreages will be subject to verification by Legal Survey.

1.4 Land Ownership

Original A.S.P. acreage as shown as being (± 259.72 acs.) ± 105.11 ha. all under the ownership of KanaGateway developments Ltd. is now shown in this Addendum as follows:

- Turner Valley Golf and Country Club (± 9.9 acres) ± 4.0 hectares transferred to KanaGateway Developments Ltd.
- KanaGateway Developments Ltd. (± 26.5 acres) ± 10.7 hectares transferred to Turner Valley Golf and Country Club for holes #15 and #16.
- 968568 Alberta Ltd. Stages 2, 2A and 3 containing (± 119.6 acres) ± 48.4 hectares transferred from KanaGateway Developments Ltd.
- Balance of lands owned by KanaGateway Developments Ltd. are (± 121.82 acs.) ± 51.9 hectares.

The new A.S.P. Addendum total acreage, therefore is (± 269.62 acres.) ± 109.1 hectares.

In the future an exchange of lands may occur between KanaGateway Developments Ltd. And Turner Valley Golf and Country Club landowners, hence the purpose and intent of this A.S.P. Addendum.

2.0 Situation Analysis

2.1 Existing Land Use

As shown on Plate No. 1 (Location and Ownership Plan), the ownership of the affected Addendum area is in two parcels, Turner Valley Golf and Country Club and KanaGateway Developments Ltd.

The first parcel is owned by the Turner Valley Golf and Country Club, that consists of a ± 4.00 hectares (± 9.9 acres) site located in the N.E. $\frac{1}{4}$ section 6-20-2-5, and is currently zoned as (UR) Urban Reserve.

The second parcel containing (± 47.4 acres) ± 19.2 hectares and owned by KanaGateway Developments Ltd., located in the S.E. $\frac{1}{4}$ section 6-20-2-5 and is also zoned (UR) Urban Reserve.

These lands are (parcel One), currently occupied by existing golf course holes and (parcel Two), currently vacant lands. Parcel Two contains a mixture of trees, scrub brush and open areas primarily flat in nature. See Plate No. 2, (Existing Land Use)

2.2 Proposed Land Use

All lands effected by the A.S.P. Addendum are currently zoned (UR) Urban Reserve. The proposed development identifies the two pods of residential as (R1) single family residential. The east and west sides of the residential are proposed to remain as (UR) Urban Reserve, until the Town of Turner Valley establishes a land use district appropriate for golf course uses.

2.3 Open Space

The existing A.S.P., "The Gateways of Turner Valley" identifies an interconnected open space system in excess of 20%. With the proposed A.S.P. Addendum reserves (creditable), there will still be well over the 10% reserve requirement.

Within the two pods of residential a proposed tot lot has been introduced which will lie in the upper "P-Loop" road south of Royalite Subdivision and will be located off the main collector to minimize traffic in the area of the tot lot where children will play.

At the south end of the Royalite Subdivision will be a buffer strip equivalent to a width of one lot with final distance and design to be decided at subdivision stage. This open space will further separate the proposed R1 from the existing subdivision and will be designed to recognize the historical uniqueness of the Royalite Subdivision Development. KanaGateway Developments Ltd. are prepared to work with the Town of Turner Valley staff at time of development to ensure Royalite Subdivision uniqueness is preserved.

Turner Valley Golf and Country Club are proposing a trail (pedestrian) loop system along the Sheep River Escarpment that will link the Villas on Imperial Drive with the Royalite Subdivision and Old Town communities. Where the existing public utilities remain across the proposed 14th hole, utility easements will be provided to the Town. (*See Plate No. 3 - Pedestrian Trails and Open Space*).

2.4 Phasing

The developments sequence is generally proposed in five stages (Stages 1, 2, 2A, 3, 4 and 5) as shown in (*Figure No. 1*). Phasing of the Stage 1 development will occur in a sequential basis of up to five (5) phases depending on the final residential layout and market demand. The final development will extend from the south end of the Royalite Subdivision south to the utility corridor R.O.W. as shown in (*Figure No. 8*). During the development of phase 1, a temporary cold mix finished road will be built across Stage 2 to 16th Avenue to provide access to Phase 1. The road between Phase 1 and Royalite Subdivision will be closed except for use as an EVA for Phase 1 via breakaway bollards. At the completion of the final phase a fully paved road will extent from Royalite Subdivision to 16th Avenue/Decalta Road. At that time the road between the Royalite Subdivision and the new development will be opened for public use and the closing of Imperial Drive will proceed.

Should the fully paved road between Royalite Subdivision and 16th Avenue not be completed within 4 1/2 years after the completion of Phase 1 Stage 1, completion of the pavement will be commenced at that time.

The complete upgrading and paving of 16th Avenue between Decalta Road and 8th Street (east Town boundary) should be determined by the Town in the future based on actual vehicle use as development occurs. The upgrading and paving of this section of road should begin at the commencement of construction of Stage 4, and should be completed prior to the commencement of Stage 5 construction.

In general, the Developer will be responsible for the cost of all infrastructure developments on the Developer's land and costs for infrastructure developments on other lands will be based on a negotiated cost-sharing of off-sites between the respective stakeholders involved. Cost of infrastructure on developer owned land which will be shared with other developers, will be negotiated on a cost sharing basis, upon approval of the Town.

A service road shall be developed on KanaGateway property parallel to 8th Street from the southerly "POSSIBLE FUTURE CONNECTION" south to 16th Avenue. This right-of-way will be developed as a median divided roadway and will extend from the "POSSIBLE FUTURE CONNECTION" west into the T-intersection of Stage 4. This road connection will be paved at time of Stage 5 completion.

2.5 Estimated Timing of Development and Road Closures

The estimated timeline for this development is as follows:

- Approval of By-laws 919-06, 918-06 and 922-06 by (March 19, 2007). Conditions may be added by the Town of Turner Valley after road closures to ensure Emergency Vehicular Access will remain open until other roads are constructed and to ensure that easements remain on titles for existing servicing lines.
- Start of development of golf holes 15 and 16 by (March 31st, 2007). (*See Figure No. 8*)
- Approval of boundary adjustments by (June 30, 2007).
- Approval of Development Permit for Phase 1 by (February 28, 2008).
- Completion of golf holes 15 and 16 by (October 31st, 2009). (*See Figure No. 8*)
- Completion of Stage 1 to full Municipal standards and the development of a paved road to 16th Avenue by (December 31st, 2011). (*Refer to Section 2.4 Phasing – first paragraph and See Figure No. 8*)
- Opening of the road between Royalite Subdivision and the Stage 1 Development by (January 1, 2012).
- Closure of Imperial Drive (east and west sections), (January 1, 2012) or whenever all Town and regulatory requirements are satisfied. The EVA for the KanaGateway Villas and the Diamond Valley Villas on the west; and the Royalite Subdivision and Old Town on the east will be a bidirectional EVA (*as shown on Plate No. 3*) from Imperial Drive along the west and north side of golf hole #14 to connect with Royalite Way S.E. on the north side of the Royalite Subdivision. This EVA will also be designated as a P.U.L. for the existing utilities which service the Royalite and Old Town Subdivision.

3.0 Transportation

3.1 Land Use

The original TIA for KanaGateway Development Ltd. completed by **impax** Consulting Group Inc. in December 2000 includes higher land use densities than the current plan for this development. The original land assumed in the Table 4.2 of **Impax** TIA is included below:

Table 4.2: Residential Land Use Mix by Neighbourhood

Neighbourhood	Number of Dwelling Units			
	SF House	Mobile Home	MF Condo	Total
1	75		135	210
2	290	100		390
3	355		110	465

In total, the original development plans proposed construction of 1065 residential units. According to TIA and based on ITE Generation rates, the total estimated traffic volume generated by this development would reach 9070 trips/day (905 trips in PM peak). **This addendum applies to Neighbourhoods 2 and 3 only which were planned to contain 855 units and generate traffic of 7430 trips/day (743 trips in PM peak).**

Current plans call for construction of approximately 756 units which will translates into 7227 trips/day (733 trips in PM peak) based on generation rates adopted in the original TIA.

The above change in the land use translates in 203 less trips/day (approximately 3% drop) generated by the KanaGateway Development as compared with the estimate for the same area in the original TIA.

3.2 Royalite and Old Town Traffic

Old Town contains 12 residential lots while Royalite Subdivision contains 24 residential lots. Based on the 10 trips/household/day generation rate the total daily traffic generated by both of those areas will be 360 trips/day (36 trips in PM peak).

3.3 Road Network

This addendum proposes closure of Imperial Drive and other modifications (*as shown on Figure No. 8*) to the transportation network submitted in the original A.S.P. These modifications will help address the slope instability along Imperial Drive just east of the Diamond Valley Villas. In addition, modifications will allow filling in of a pond in the vicinity of the slope instability area and accommodation of the new golf course layout. Proposed modifications could be summarized as follows:

- The portion of Imperial Drive lying east and north of the villas will end with a cul-de-sac turn around at the north east corner of the Diamond Valley Villas.

3.4 Transportation Impact Assessment

3.4.1 Traffic Patterns and Travel Time

Modification of the proposed network traffic pattern, accepted in the original A.S.P., and caused by the proposed network modifications will be minimal. No significant changes to the access management strategy approved in the original A.S.P. are proposed.

Modification of the travel time calculated based on the posted speed limits will be minor (*see Figures 2 to 5*). The proposed network modifications will increase travel time of the residents of the Royalite Subdivision and other areas as shown on (*see Figures 2 to 5*). These increases in travel time will not be significant when compared to the total time and the distance traveled.

	EXISTING ROAD NETWORK		PROPOSED ROAD NETWORK	
To/From:	Travel Time	Distance	Travel Time	Distance
Royalite - Downtown	5.8 minutes	3.5 km	6.0 minutes	4.2 km
Diamond Villas - Golf Course	2.5 minutes (via Royalite)	1.2 km (via Royalite)	5.8 minutes (via 16 th Avenue)	6.4 km (via 16 th Avenue)
Downtown - Golf Course	7.0 minutes (via Royalite)	3.9 km (via Royalite)	7.0 minutes (via Black Diamond) 9.2 minutes (via 16 th Avenue)	7.8 km (via Black Diamond) 8.6 km (via 16 th Avenue)

The proposed Imperial Drive closure can not be considered detrimental to the network operation since traffic impacted by the network modification amounts to 180 trips/day (18 trips in PM peak) based on the traffic counts included in **impax** TIA. These trips are golf course bound and will either use Highway 22 or 16 Avenue to reach their destination.

The traffic generated by Old Town and the Royalite Subdivision results in 360 trips/day (36 trips in PM peak) being added to the estimated traffic which will be generated by KanaGateway Subdivision. This means that in total there are going to be a maximum of 24 additional trips in and 12 additional trips out of the subdivision during PM peak hour. These additional trips will be accommodated ultimately by the five proposed accesses into the KanaGateway Lands. Consequently any increase in number of trips at each of the access points will be negligible.

3.4.2 Capacity of the Decalta Drive Intersection

As stated above impact of the proposed modifications on the operation of the proposed area network will be negligible. The overall number of trips generated by the current development concept is expected to be reduced by only 203 trips/day (3% drop) compared to the number of trips estimated in the original TIA. Consequently, operational conditions and level of service expected at all access intersections should remain as per the original TIA.

3.4.3 Main Street/Hwy 22 Intersection

The original TIA recommended a traffic signal to be installed at the Main Street/Hwy 22 Intersection when development is 40% complete (based on Neighbourhoods 1, 2 and 3). Following assumptions adopted in the **impax** TIA, it is expected that a traffic signal at this location will not be required before the development reaches approximately 30% completion for

Neighbourhoods 2 and 3 which are subject to this amendment. This means that up to 216 new units could be constructed within the KanaGateway development before the signal at Main Street/Hwy 22 Intersection might be required.

3.4.4 Other Network Modifications

The original TIA recommendations were based on 3% annual traffic growth and KanaGateway Subdivision being constructed as 1065 unit subdivision. The assumed traffic growth of 3% may not be sustainable over the period required for full build-up of the proposed subdivision. Consequently, traffic monitoring should be initiated to assess the proper timing of the improvements recommended in the original TIA.

3.4.5 Timing of Imperial Drive Closure

Timing of Imperial Drive closure will be related to thresholds of development phasing and servicing. Closure of Imperial Drive will occur after acceptable alternative access into the Royalite Subdivision is provided to the satisfaction of the Town of Turner Valley. (*see Section 2.4*)

3.4.6 Golf Course Access

With the closure of Imperial Drive north east of Diamond Valley Villas, the through east-west traffic across the golf course will be eliminated. This results in 180 trips/day (18 trips in PM peak) being affected based on the traffic counts included in the original **impax** TIA. These trips will either use Highway 22 or 16 Avenue to reach their destination.

Imperial Drive south of Diamond Valley will be used by KanaGateway residents and by emergency vehicles if and when required in an emergency situation.

3.4.7 Impact on 16th Avenue

Currently 16th Avenue carries a mixture of traffic, including heavy trucks servicing oil and gas related activities as well as local traffic consisting of car and pickup trucks. The existing surface of 16th Avenue is not paved and requires intensive reconstruction due to the amount of existing heavy traffic related to oil and gas vehicular activities. Construction of the KanaGateway subdivision in accordance with the proposed modifications to its network will reduce traffic volumes estimated in the original **impax** TIA. Since KanaGateway area, Royalite Subdivision, Old Town and Diamond Valley Villas will represent residential subdivisions; traffic generated by these areas will not have an adverse impact of the integrity of the 16th Avenue surface.

Phasing of the Stage 1 development will occur in a sequential basis of up to five (5) phases depending on the final residential layout and market demand. The final development will extend from the south end of the Royalite Subdivision south to the utility corridor R.O.W. as shown in (*Figure No. 8*). During the development of Phase 1, a temporary cold mix finished road will be built across Stage 2 to 16th Avenue to provide access to Phase 1. The road between Phase 1 and Royalite Subdivision will be closed except for use as an EVA for Phase 1 via breakaway bollards. At the completion of the final phase a fully paved road will extent from Royalite Subdivision to 16th Avenue/Decalta Road. At that time the road between the Royalite Subdivision and the new development will be opened for public use and the closing of Imperial Drive will proceed.

Following completion of Stage 5 surface of 16 Avenue will be upgraded to paved standard between 8 Street and Decalta Road.

3.4.8 Road Closure(s) Impacts

The Turner Valley Golf and Country Club have initiated closures of Imperial Drive and, therefore, are supportive of the proposed ASP modifications. The club members believe that the golf course will be enhanced as a result of the proposed modifications. A vote of the membership showed that 75% of the 133 members in attendance are in favour of this proposal. Most of the members supporting this initiative live in the surrounding area.

The closure of the two sections of Imperial Drive will not have an adverse effect on traffic other than:

- Increasing slightly lengths and therefore, time of travel to the Turner Valley and Black Diamond business sections from Royalite Subdivision. - Residents will still be using those business centers and although it may take them a short period to adjust to the new routes in the areas, any effect on the local businesses will be minimal.
- Increasing slightly lengths and therefore, time of travel to the Golf Course from Downtown Turner Valley, Bailey Ridge, Diamond Villas and Royalite Subdivision. - It should be noted that this traffic component is very small and will have impact on very small percentage of the residents in the area.

It is expected that the future growth of Turner Valley will likely occur to the east of the KanaGateway lands. In anticipation of this, two accesses east are proposed from Stage 4 and Stage 5. These accesses will provide connection to the development east of KanaGateway Subdivision and will act as a second egresses once development has reached this point. (*See Figure 8*)

3.4.9 New Through Road from Royalite Subdivision/Old Town

KanaGateway are aware of concerns related to the interface between the south lane of the Royalite Subdivision and the KanaGateway development. As such, KanaGateway agrees to work with the Town Staff to design an acceptable separation at this juncture. This can take the form of a cobblestone pedestrian crossing, planted trees or signage to denote the historical significance on entry to Royalite Subdivision from the south etc. The new through road from Royalite Subdivision south Stage 2 is approximately ± 830 meters and ± 300 meters to the 16th Avenue intersection. The through road from Royalite Subdivision to 16 Avenue will be constructed to a median divided standard with median breaks introduced to accommodate access to the roads entering perpendicular to this road from the west cul-de-sacs. (*See Figure No. 8*)

Note: The Transportation Impact Assessment review and update contained herein was prepared by iTrans Transportation Planning and Traffic Consultants. Support data and relevant Plates are contained within the Appendix.

4.0 Storm Water Management

Stormwater management plans that are progressive in nature and amount of detail will be developed for the site to minimize the risk of flooding and potential property damage and reduce impacts on the Sheep River as ultimate receiving water body. A semi-rural conveyance system is envisioned that not only conveys and accommodates runoff up to and including a 1:100 year event but also provides enhanced water quality and added value by incorporating a wide variety of Best Management Practices. The resulting "waterscape" drainage system will be fully integrated in the overall landscaping and green linkages thus providing passive recreation and preservation of existing habitat and/or generation of new habitat.

Locations of and the linkages between the proposed major stormwater management facilities should consider the existing golf course drainage system as the eastern portion of the development lands currently drain onto the golf course. With the proposal to integrate the proposed development with the existing Royalite Subdivision and the proposed construction of two new golf holes on the development lands, it is more important than ever that the integration of the development and golf course drainage systems be considered.

A Stormwater Letter Report was forwarded to the Town of Turner Valley in June 2006 (See this letter report submitted to the Town of Turner Valley under a separate cover. A copy is also located in the appendix). This letter report addressed the integrated stormwater management concept for the KanaGateway Lands and the Golf Course: specifically, the location and type of stormwater management facilities; the adoption of Best Management Practices to enhance the water quality of the runoff discharged to the Sheep River; and the location, of discharge outfall(s) to the Sheep River. Preliminary storage requirements and off-site discharge rates were also included.

A Detailed Master Drainage Plan will be prepared prior to any subdivision or prior to the golf course development permit being issued. This document will be submitted to the Town of Turner Valley and Alberta Environment for approval as well as other regulatory agencies (i.e. DFO, Public Lands, etc...). The stormwater conveyance system, stormwater management facilities, BMPs and storm outfalls will be designed to Town of Turner Valley and Alberta Environment standards. Detailed drawings for servicing each development cell will be provided to the Town as part of the approval process. Drawings will be supported by detailed stormwater management reports or design briefs that detail the operation of any facilities or BMPs, and verify the operation of the drainage system versus Town and provincial guidelines.

In lieu of P.U.L.'s for the stormwater facilities (pipes, ponds, etc.) which would be shared facilities is acceptable by the Town that a "Letter of Agreement" signed by the Turner Valley Golf and Country Club regarding the maintenance of said mentioned facilities will be sufficient. The aforementioned will be designed to standards acceptable to AENV and the Town with respect to forebay, lining, sideslopes, inlet and outlet structures, depth, level rise, access, and a number of other factors. The town will likely own and control the shared components of the facilities. Caveats will be required from the golf course accepting back of lot and other drainage.

5.0 Municipal Servicing

The following options that are available through investigation with the Town of Turner Valley engineers and will require detailed design review and approvals by Turner Valley Staff and Town Engineers at Outline and Plan of Subdivision stages. The services are illustrated on Plate No. 4.

Sanitary

Construction of a sanitary gravity flow system would be undertaken by the Developer(s) for the 1st Phase of development of The Gateways of Turner Valley subdivision in accordance to the Town of Turner Valley guidelines. The existing 150mm (6") Sanitary main that is presently servicing Royalite Subdivision will be replaced with a 200mm (8") Sanitary main and all services to the Property Line will be tied into the new main. This new 200mm (8") sanitary main will be able to service the 3 phases of development of Stage 1 of The Gateways of Turner Valley subdivision, which will include approximately ±129 additional lots. The Royalite lift-station will have to be upgraded. Additional services will not overload the upgraded system of the existing Lift Station. Prior to completion of the Stage 1 development, the existing Royalite lift-station will be upgraded. The upgraded Stage 2 lift-station will then accommodate an additional 815 persons or ±256 additional units. The anticipated ultimate Stage 2 lift-station area would include Bailey Ridge, Bailey Hill, Diamond Valley Villas, Gateway Villas, Royalite, Stages 1, and most of Stages 2 and 2a. The balance of land contained in Stages 2, 3, 4, and 5 will be serviced by the future trunk line proposed on 8th Street.

Water

The water servicing will be tied into the new water main at the north end of Royalite Subdivision and the existing 150mm (6") water main along Royalite Way S.E. will be replaced with a 250mm (10") water main and the servicing to property line along Royalite Way S.E. will be replaced. The looping of the water main to service the 1st Phase Stage 1 of The Gateways of Turner Valley subdivision will be taken through a designated green area between The Gateway Villas and Diamond Valley Villas and tied back to Imperial Avenue to the West of the Condominium site. When the remaining Phases of Stage 1 of The Gateways of Turner Valley subdivision reach beyond the threshold for a dead end main a 250mm (10") will be constructed to the south and tied to a water main that is to be constructed in future along 16th Avenue. A Master Servicing plan for water and sanitary will be provided as part of the engineering design for The Gateways of Turner Valley subdivision.

Storm

Retention would be developed and storm catchments (pond areas) will be needed (Section 4.0 Storm Water Management)

The above mentioned is for preliminary information only and an extensive study would have to be conducted to evaluate the most cost effective way of developing these deep utilities.

APPENDIX

- Plate No. 1 Location Land, Ownership and Road Closure Plan
- Plate No. 2 Existing and Proposed Land-use
- Plate No. 3 Pedestrian Trails and Open Space
- Plate No. 4 Utility Plan

Letters from iTrans Consulting and Westhoff Engineering Resources, Inc.

Figure No. 1 – Addendum Land Use Plan

Figure No. 2 Road network review – travel times and distances

Figure No. 2A Road network review – travel times and distances

Figure No. 3 Road network review – travel times and distances

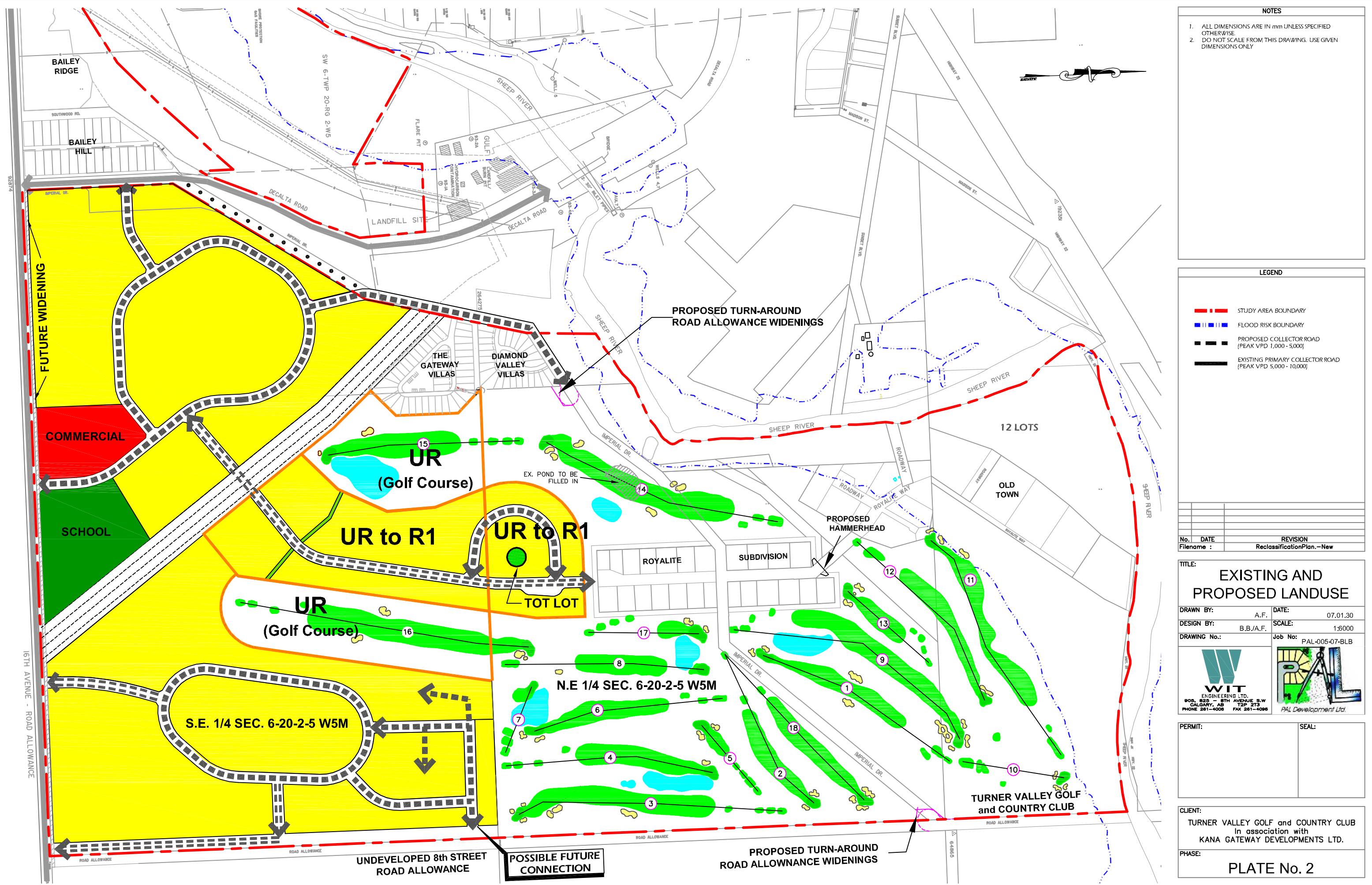
Figure No. 4 Road network review – travel times and distances

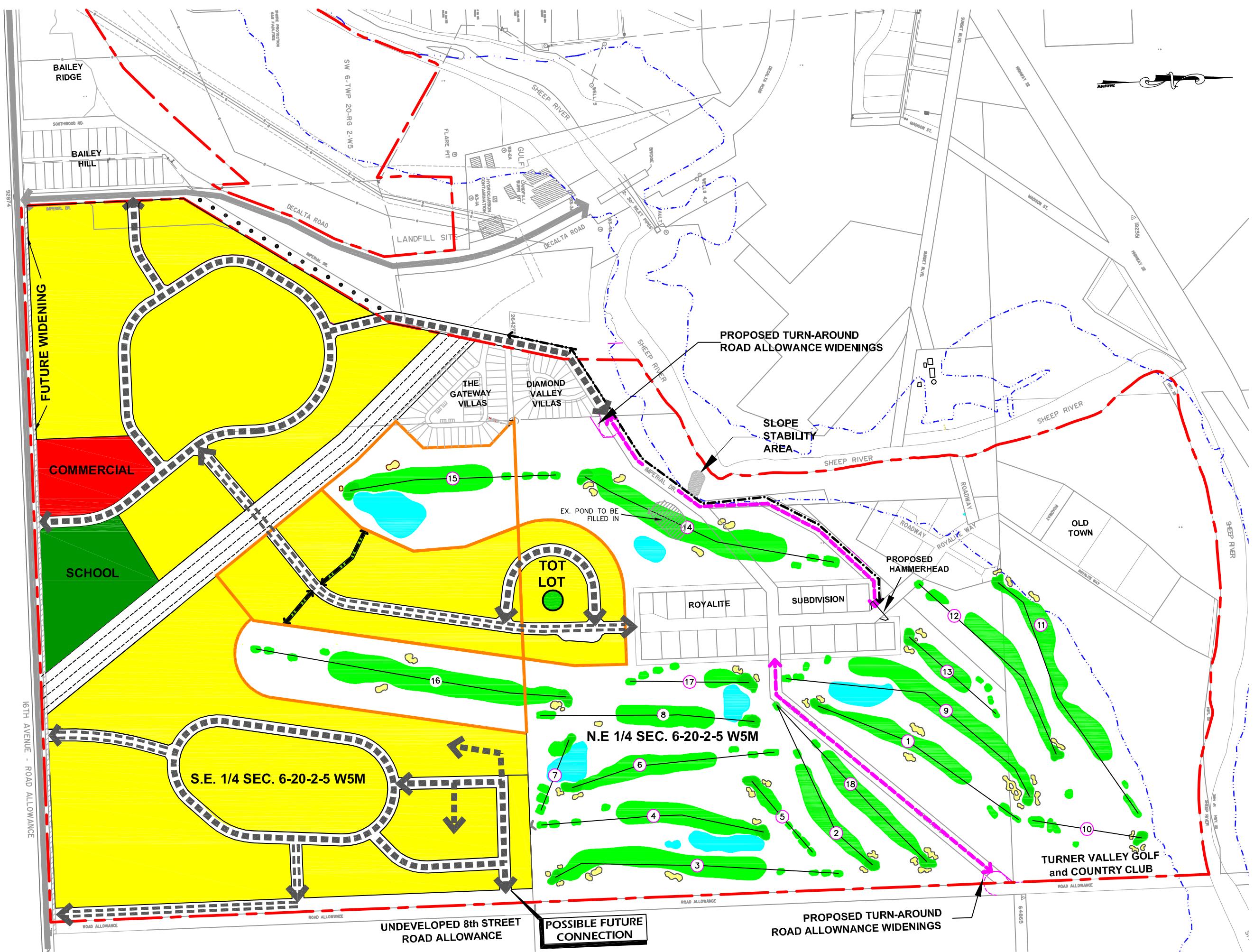
Figure No. 5 Road network review – travel times and distances

Figure No. 6 is the original land use plan for the Gateways of Turner Valley Area Structure Plan as approved.

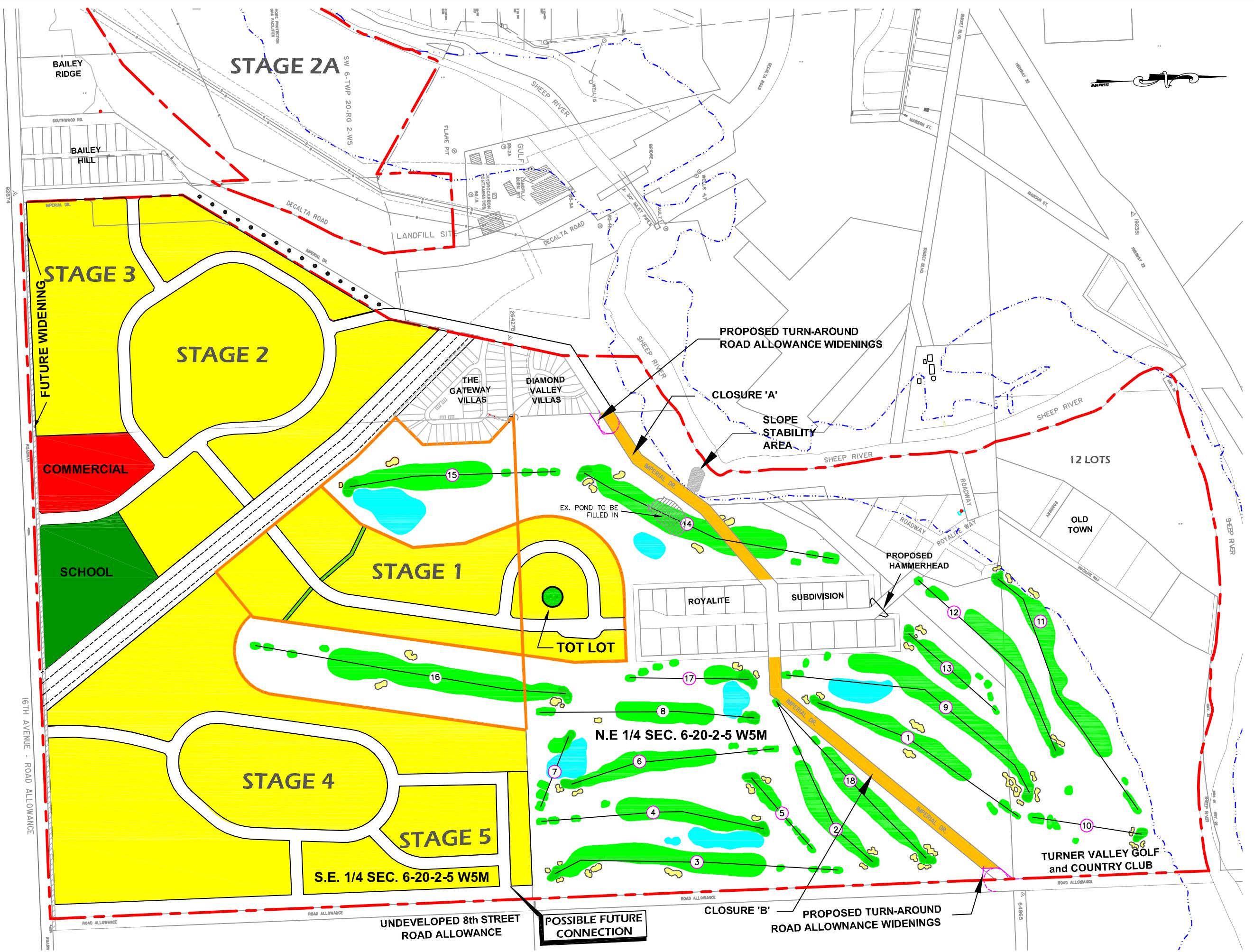
Figures 7, (black and white), is taken from the original A.S.P. and shows the land use change superimposed on the plans as developed for this addendum, and also identify the revised Stages of Development.

Figure No. 8 is the T.I.A. (Transportation Impact Assessment) Plan.









TES

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED
OTHERWISE.
DO NOT SCALE FROM THIS DRAWING. USE GIVEN
DIMENSIONS ONLY

LEGEND

The legend consists of three rows. The first row shows a red rectangle with a black border and the text 'STUDY AREA BOUNDARY'. The second row shows a blue rectangle with a black border and the text 'FLOOD RISK BOUNDARY'. The third row shows a yellow rectangle with a black border and the text 'ROAD CLOSURES ARE SHOWN THUS.'

DATE	REVISION
ame :	ReclassificationPlan.-New

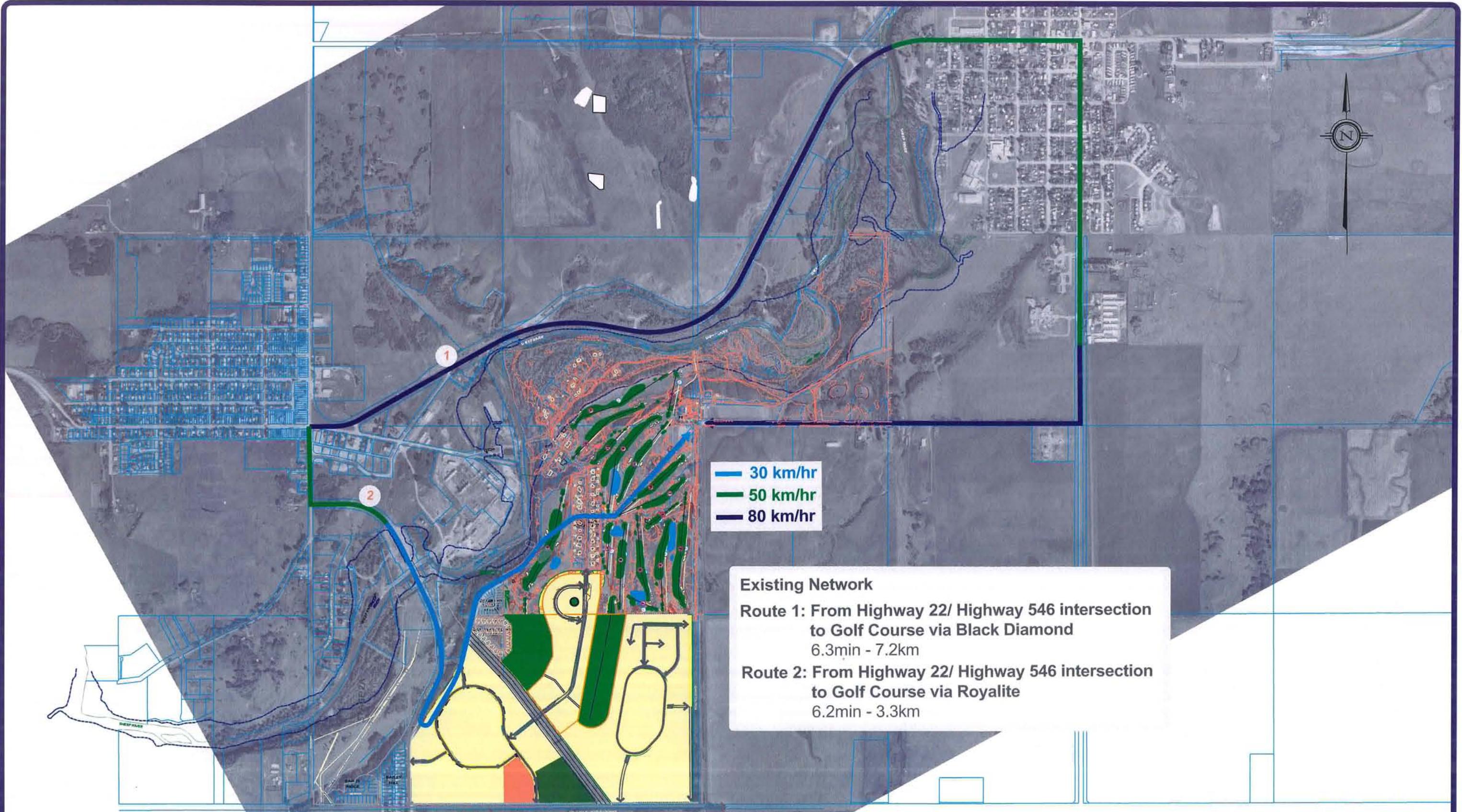
ADDENDUM LAND USE PLAN

WIN BY:	A.F.	DATE:	07.01.30
GN BY:	B.B./A.F.	SCALE:	1:6000
WING No.:	Job No: PAL-005-07-BLB		
 WIT ENGINEERING LTD. 825 - 8TH AVENUE S.W. ALBERTA T2P 1T3 FAX 244-4008 TEL 244-4008		 PAL Development Ltd.	

MIT: SEAL:

NT:
URNER VALLEY GOLF and COUNTRY CLUB
In association with
KANA GATEWAY DEVELOPMENTS LTD

SE:

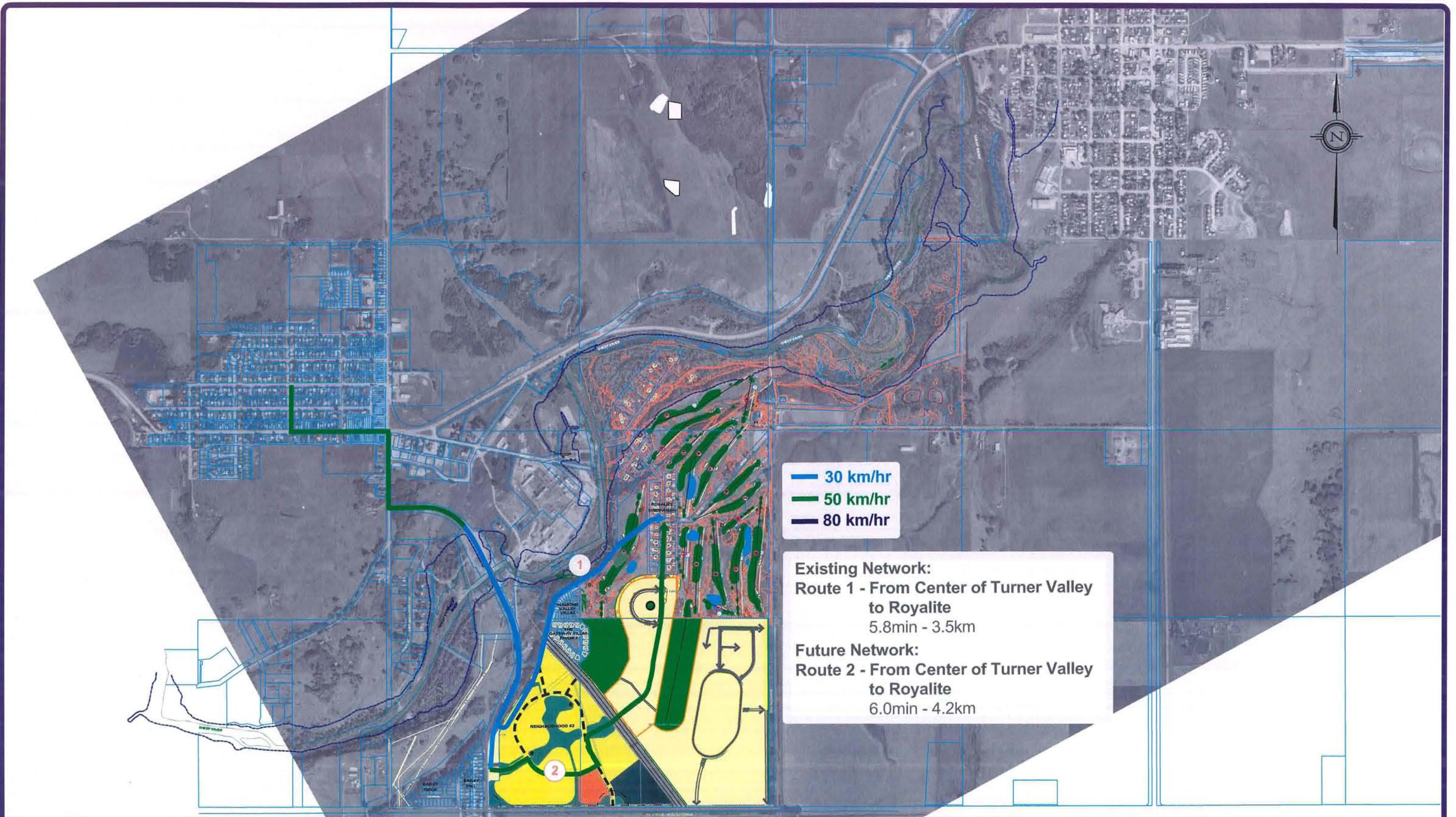


TURNER VALLEY ASP

ROAD NETWORK REVIEW

EXISTING ROAD SYSTEM - TRAVEL TIMES & DISTANCES

Figure 2

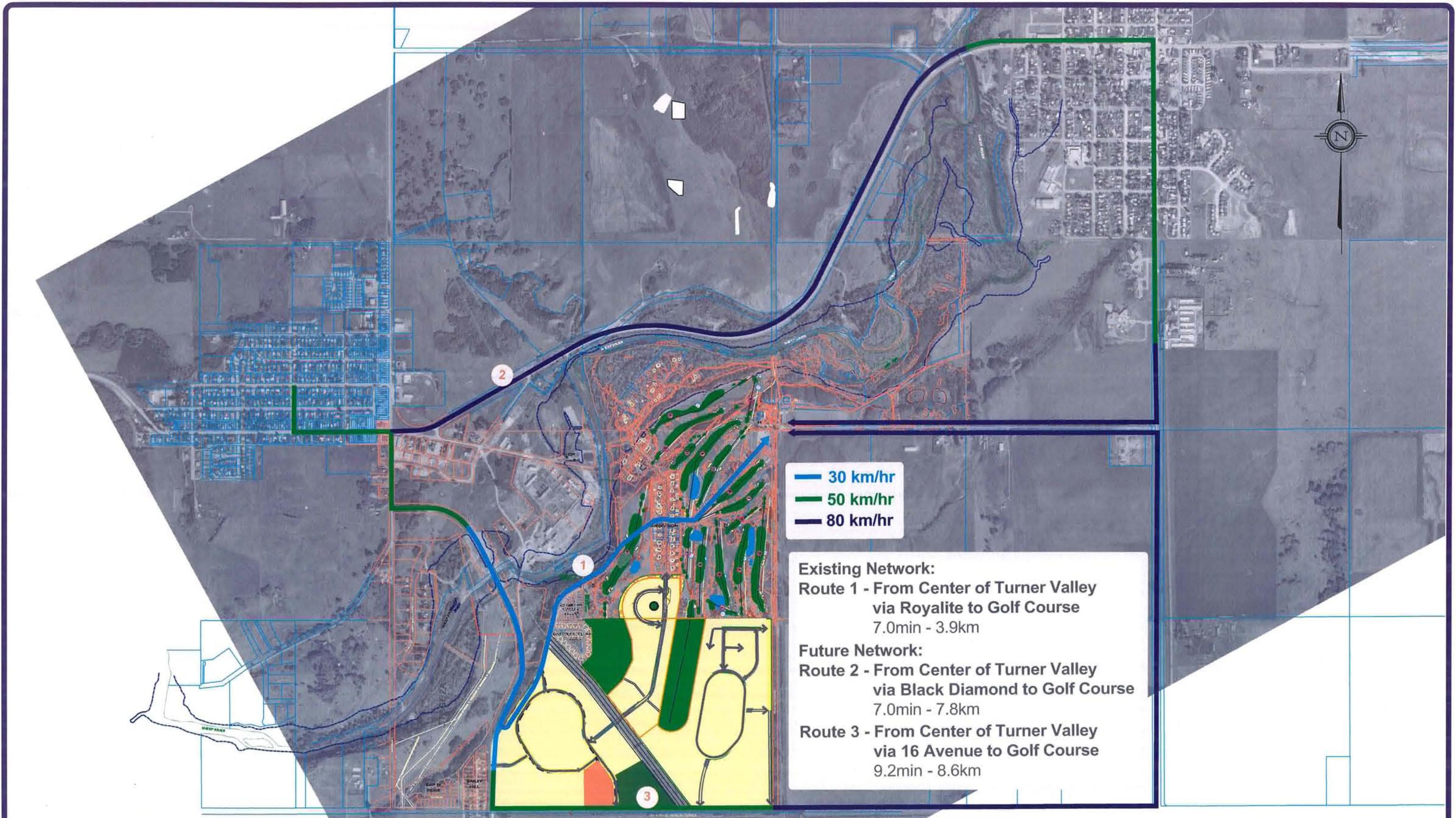


TURNER VALLEY ASP

ROAD NETWORK REVIEW

ROAD SYSTEM - TRAVEL TIMES & DISTANCES

Figure 2A

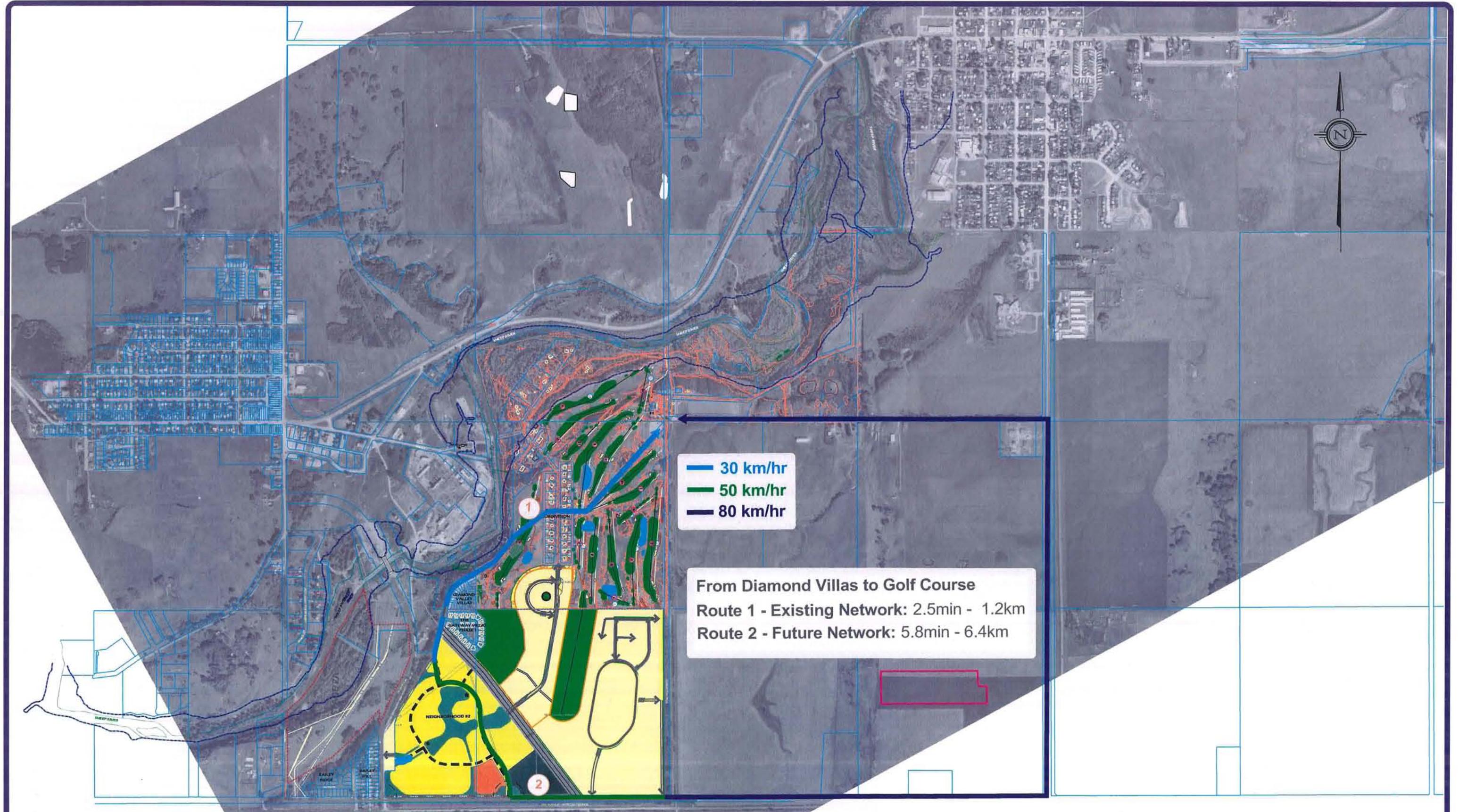


TURNER VALLEY ASP

ROAD NETWORK REVIEW

ROAD SYSTEM - TRAVEL TIMES & DISTANCES

Figure 3

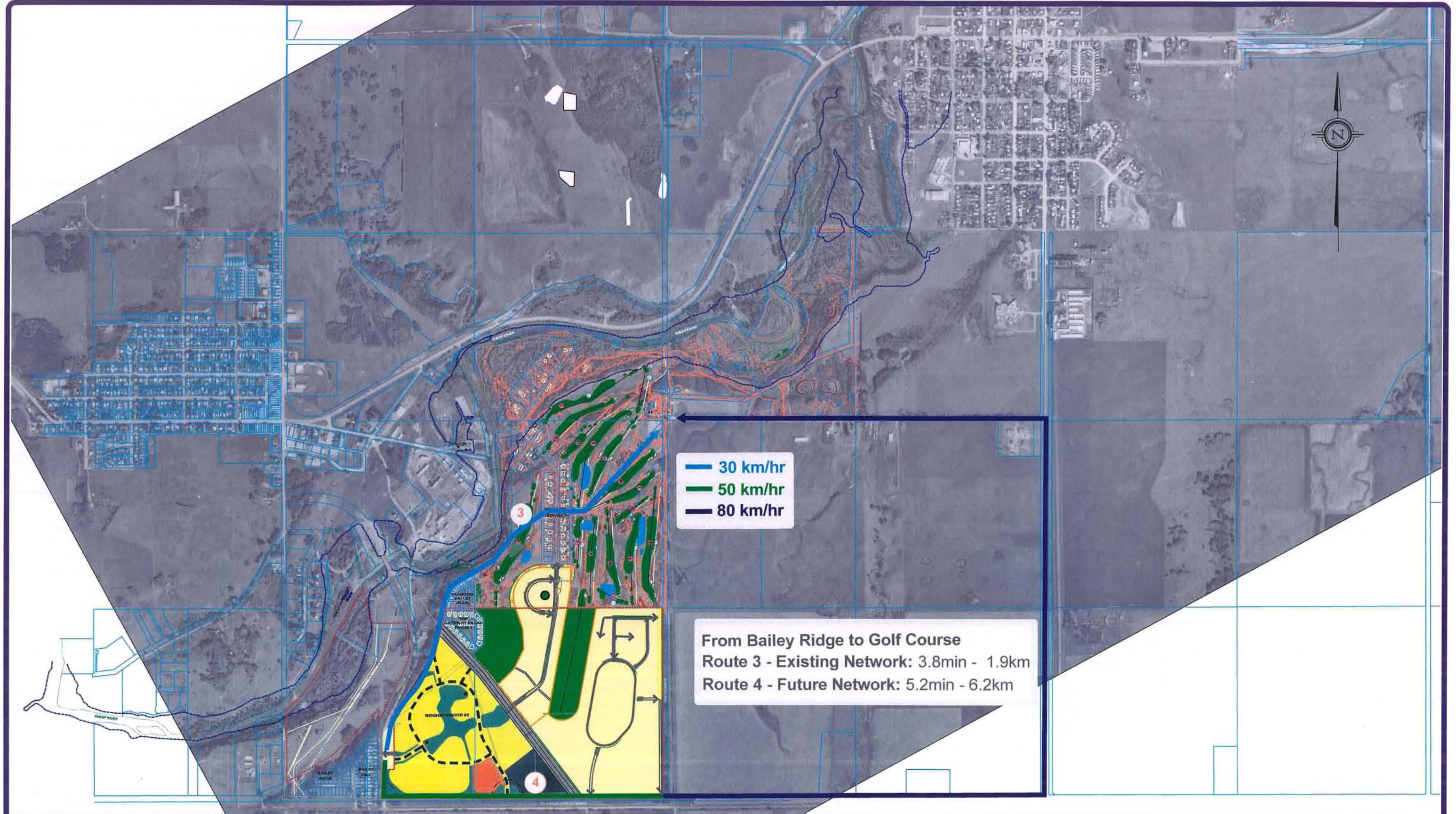


TURNER VALLEY ASP

ROAD NETWORK REVIEW

ROAD SYSTEM - TRAVEL TIMES & DISTANCES

Figure 4



TURNER VALLEY ASP

ROAD NETWORK REVIEW

ROAD SYSTEM - TRAVEL TIMES & DISTANCES

Figure 5



KANAGATEWAY
Developments Ltd.

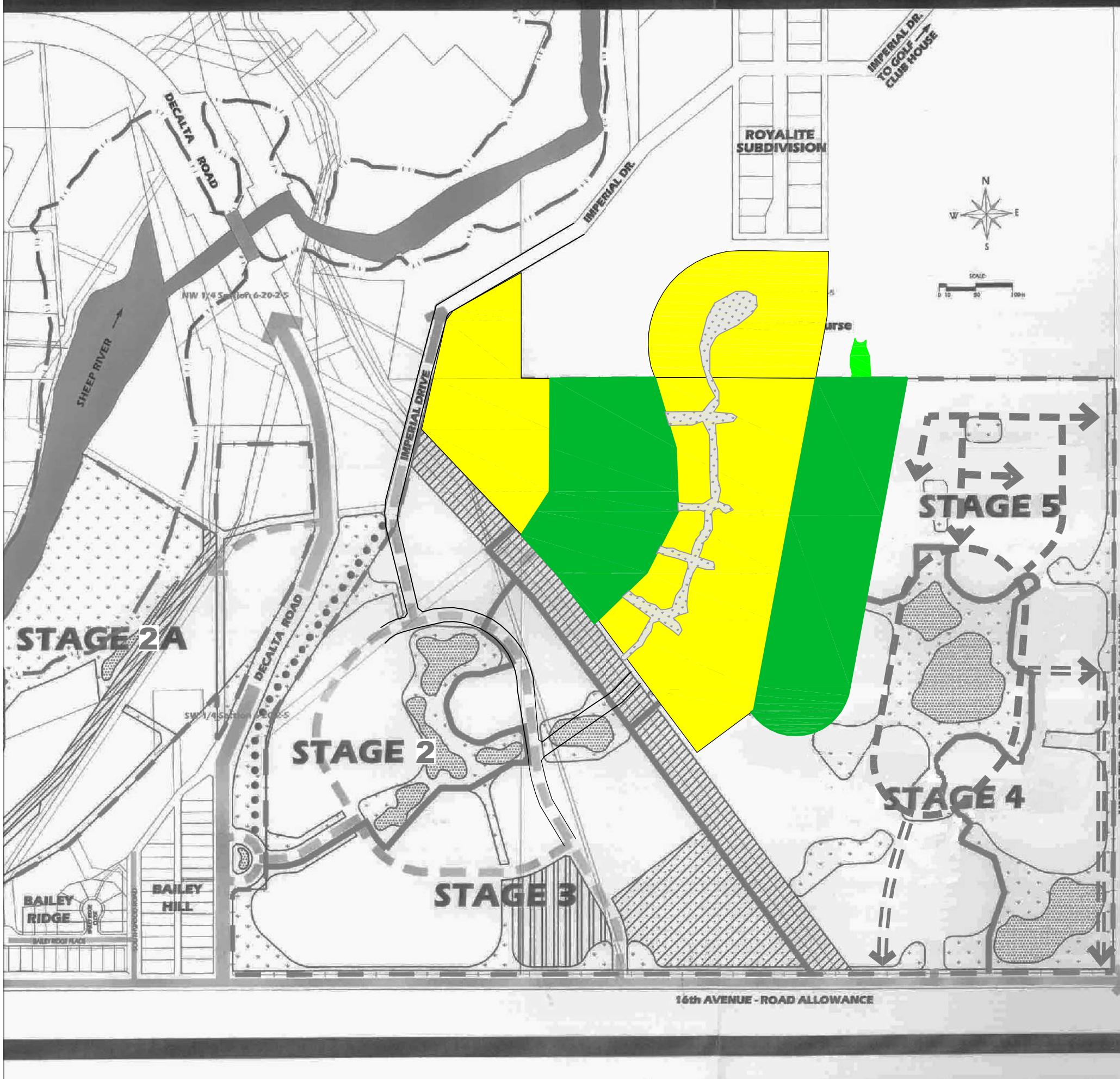
THE GATEWAYS OF TURNER VALLEY LAND USE PLAN

LEGEND

DATE: 15 FEB 2001



FIGURE 6



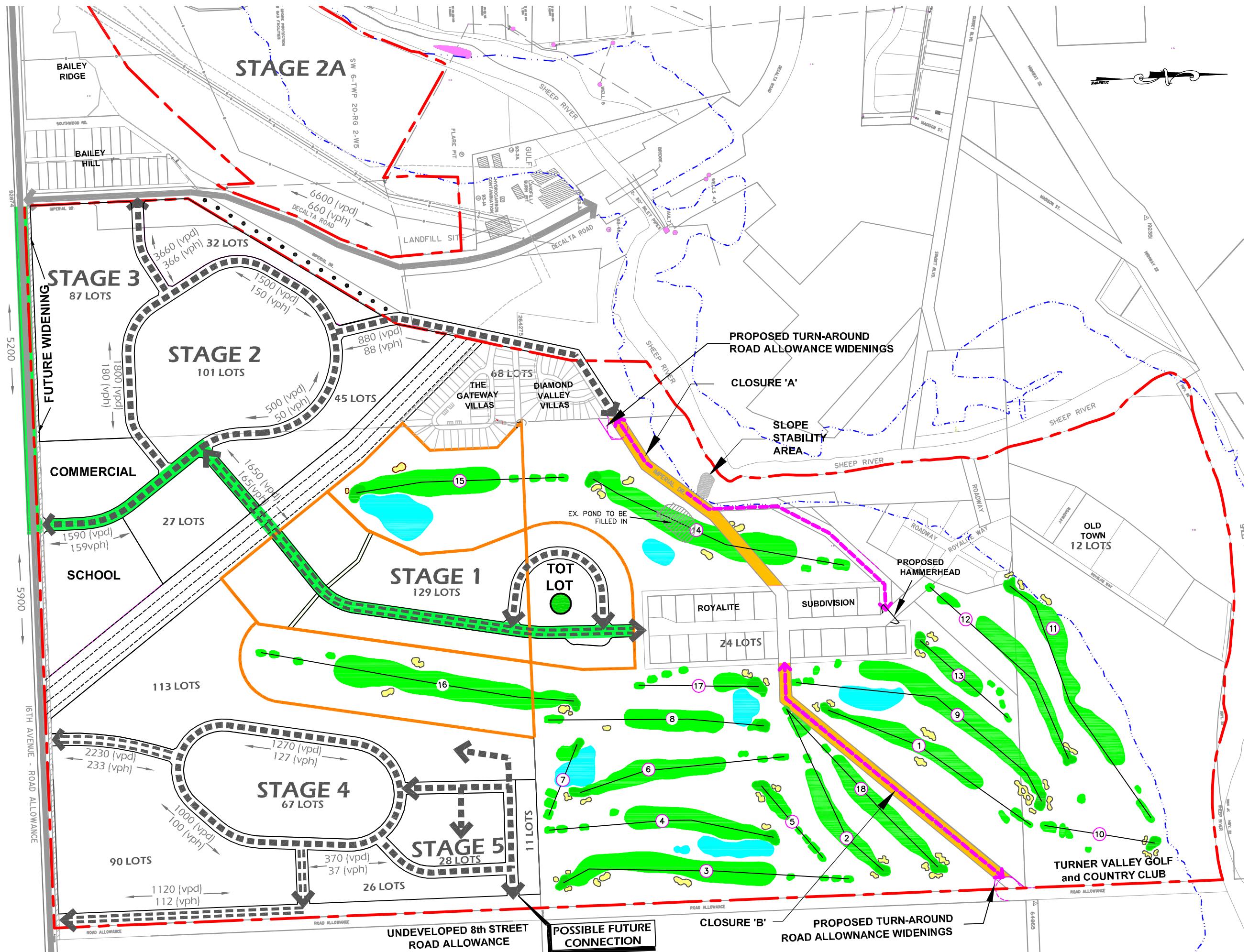
DATE: 15 FEB 2001

WALKER
NEWBY
CONCEPTS INTO COMMUNITIES
PLANNERS
ENGINEERS
LEGAL SURVEY
STRATEGISTS

FILE NO. 7350-103-07A.DWG



FIGURE 7



NOTES

RESIDENTIAL ROAD (<1000 vpd) ARE NOT SHOWN.

TITLE:		TRANSPORTATION PLAN	
DRAWN BY:	A.F.	DATE:	07.01.30
DESIGN BY:	B.B./A.F.	SCALE:	1:6000
DRAWING No.:	Job No: PAL-005-07-BLB		
 WIT ENGINEERING LTD. 905, 625 - 5TH AVENUE S.W. CALGARY, AB T2P 1T3 PHONE 281-4006 FAX 281-4086			
PERMIT:	SEAL:		

CLIENT:
TURNER VALLEY GOLF and COUNTRY CLUB
In association with
KANA GATEWAY DEVELOPMENTS LTD.

PHASE:
FIGURE No. 8