

Western Regional Water Commission

STAFF REPORT

DATE: August 11, 2016

TO: Chairman and Members, Western Regional Water Commission ("WRWC")

FROM: Jim Smitherman, Water Resources Program Manager
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SUBJECT: Presentation of regional water use and wastewater flow projections, a 20-year analysis using various spatial growth scenarios; and possible direction to staff

SUMMARY

The TMRPA has successfully implemented a scenario planning program that allows regional water and wastewater service providers to contemplate the effects of different spatiotemporal patterns of growth on existing and future provisioning of related services and infrastructure. Since 2011 and as part of an interlocal agreement with the WRWC, TMRPA has been working to achieve this capacity through a suite of technical programs and study. These include, but are not limited to, the Industrial Land Needs Analysis, the Washoe County Consensus Forecast, the Population and Employment Model, and the soon to be completed Regional Housing Study. In each of these efforts TMRPA staff have built relevant technical capacity and validated parcel-level information about zoning and existing entitlements for use as the input to scenario modeling.

Notably, the Regional Housing Study considers 4 distinct scenarios of future housing growth by evaluating both the spatial and temporal aspects of that potential growth in the Truckee Meadows. Acknowledging that the future is inherently uncertain and that the exact type and location of future housing units will never be fully known, two scenarios with distinct spatial patterns of development are evaluated: one based on a continuation of recent development trends, and another that explores a slightly more compact development pattern (i.e. somewhat higher densities, some additional redevelopment, and a greater proportion of new units within McCarran Boulevard when compared to the recent trends). Future population has been allocated to these scenarios using the growth rate specified in the 2014 Washoe County Consensus Forecast. Each of these scenarios are currently being evaluated against two criteria: 1) future costs to provide water, wastewater, regional roads and school infrastructure, and 2) the type of housing that will be needed based on demographic and socioeconomic trends.

Additionally, to explore potential impacts associated with successful economic development efforts bringing faster growth to the region, the timing of population growth associated with the scenarios has also been varied, assuming that population grows faster in the next five years consistent with the recently completed Northern Nevada Regional Growth Study commissioned by the Economic Development Authority of Western Nevada ("EDAWN"), i.e., the Economic Planning and Indicators Committee ("EPIC") study. The Consensus Forecast growth rate as well as an extrapolated growth curve based on the EPIC report 5-year projections are displayed out to the 20-year planning horizon in Figure 1 below. Both scenarios assume that population will

grow to 570,648 people by 2035, consistent with the 2014 Consensus Forecast. The scenarios proposed for use in the Housing Study as well as variations that contemplate faster growth are described below in Table 1 with further details characterized in the subsequent paragraphs.

For each scenario detailed in Table 1 TMRPA has calculated both water demand and wastewater generation on a parcel by parcel basis. These projections have been aggregated into 5-year sums and can be further grouped by relevant geographies (e.g. a hydro basin or a treatment facility service territory). To calculate water demand TMRPA utilized the water demand factors by hydro basin published in the Truckee Meadows Water Authority (“TMWA”) 2016 to 2035 Water Resource Plan. Wastewater generation used a similar approach wherein TMWA water demand factors were constrained to winter water use amounts (i.e. without the irrigation component/provided by TMWA). Calculated flows have been validated against observed inflow averages at each wastewater treatment facility.

Since these demand factors and wastewater generation calculations are spatially discrete to the parcel level, it is possible for local and regional staff to tie the development of future residential parcels to the construction of required infrastructure. Thus a planning-level cost estimate can be derived for each scenario by looking at the costs to construct and maintain the identified infrastructure needs.

Figure 1: Population Projections

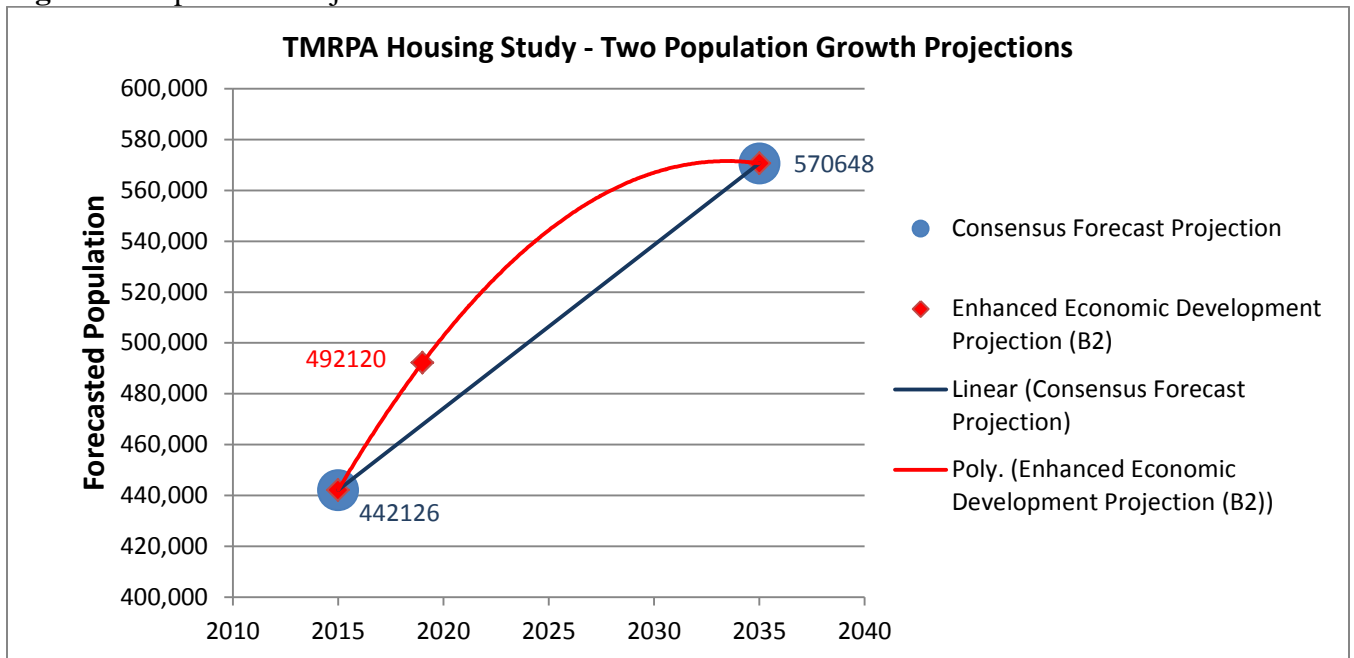


Table 1: Scenarios

Scenario 1: Recent Trend Development Pattern	Scenario 2: More Compact Development Pattern
1a: Recent trends + Consensus Forecast growth rate	2a: More compact development + Consensus Forecast growth rate
1b: Recent trends + accelerated growth in next five years	2b: More compact development + accelerated growth in next five years

Scenario 1a: Recent Trends + Consensus Forecast Growth Rate: This scenario projects forward the pattern of development observed from the past 15 years. This pattern is typified by detached single-family housing on relatively large lots located on the periphery of the region. While detached single-family housing accounts for 60% of housing units in this scenario, multi-family units are also modeled. Based on recent trends, these units are located in various areas throughout the region. This scenario also models population growth occurring at an average annual growth rate of 1.3%, as detailed in the adopted 2014 Washoe County Consensus Forecast.

Scenario 1b: Recent Trends + Accelerated Growth Rate: This scenario is utilizes the same development pattern described in Scenario 1a. The timing of development is accelerated over the 2015-2020 timeframe based using the 2.3% average annual growth rate which is from Scenario B2, the highest growth rate contemplated in the EPIC Report.. After 2020, the average annual growth rate declines until it reaches the Consensus Forecast projection for the year 2035.

Scenario 2a: More Compact Development + Consensus Forecast Growth Rate: This scenario departs from the development trends observed over the past 15 years and models a more compact form of development that has a greater proportion of units locating within the McCarran ring. While a majority of new units are modeled as detached single-family homes, this scenario also shows a shift towards denser housing including small lot single-family homes, duplexes, and multi-family units, as well as additional redevelopment above that seen in the recent trend scenario. This scenario further models population growth occurring at an average annual growth rate of 1.3%, as detailed in the adopted 2014 Washoe County Consensus Forecast.

Scenario 2b: More Compact Development + Accelerated Growth Rate: This scenario is utilizes the same development pattern described in Scenario 2a. The timing of development is accelerated over the 2015-2020 timeframe based using the 2.3% average annual growth rate detailed in the EPIC Report. After 2020, the average annual growth rate declines until it reaches the Consensus Forecast projection for the year 2035.

RECOMMENDATION

Staff recommends that the WRWC accept the report on regional water use and wastewater flow projections, and provide appropriate direction to staff, if any.

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