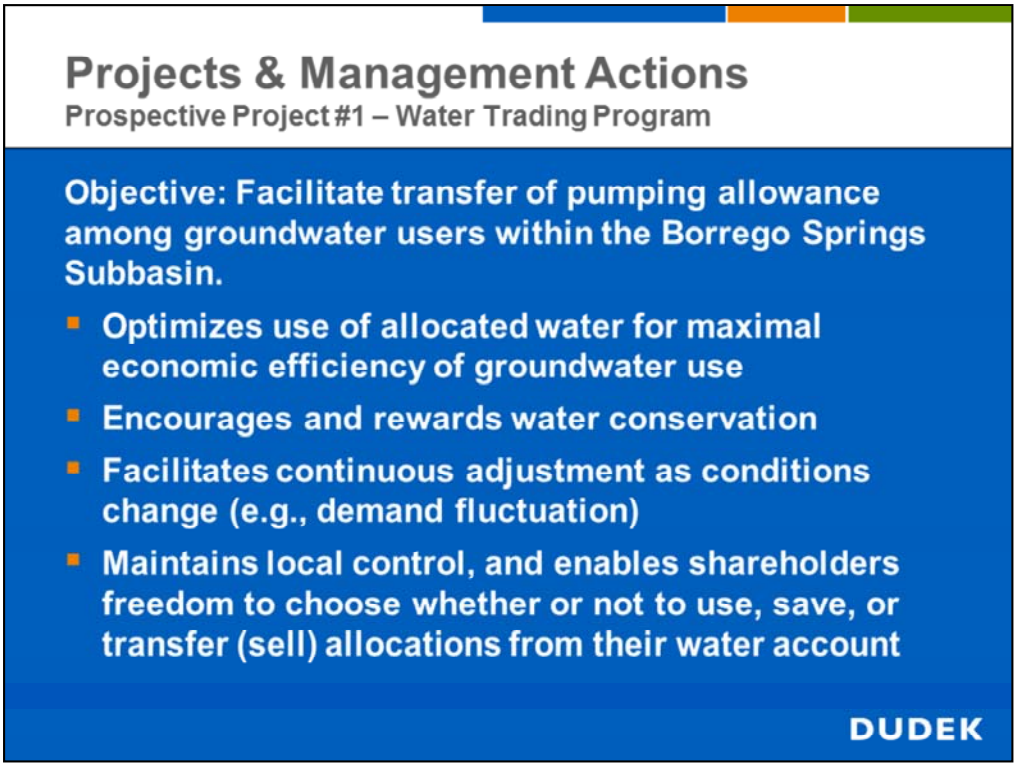
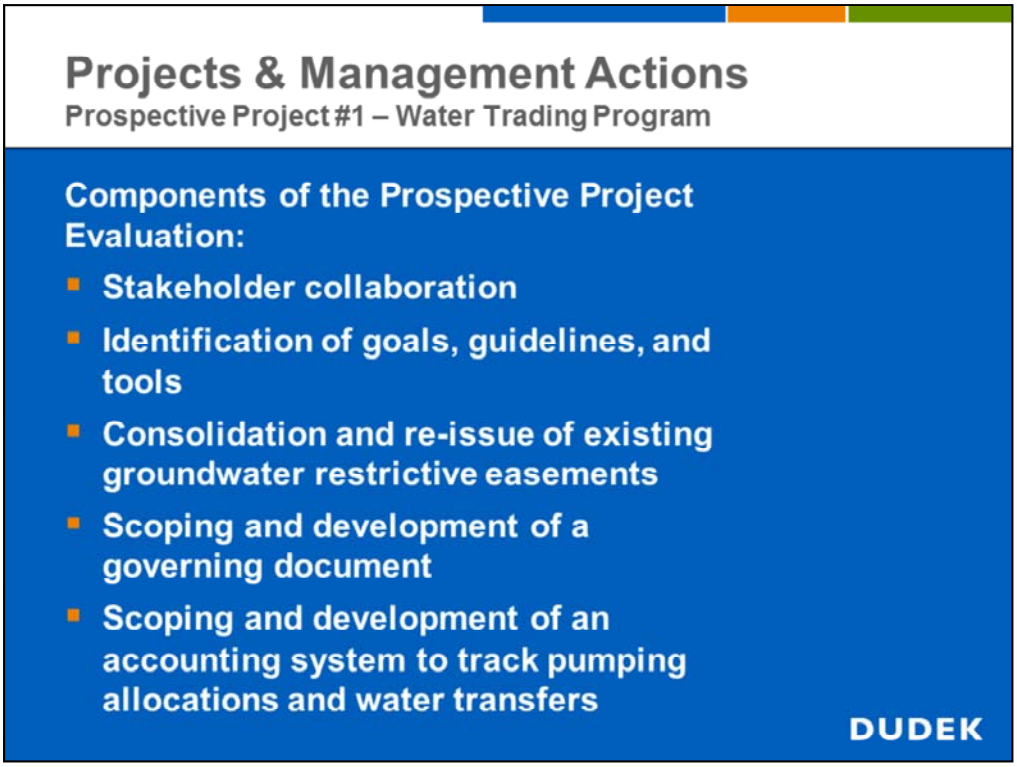
As per Agenda Packet Item III.C: Technical and Policy Issues this part of the presentation introduces the Projects and Management Actions to be considered.



A basin-specific Water Trading Program will be developed to facilitate transfer of baseline pumping allocation among groundwater users in the Borrego Springs Subbasin (Subbasin).

The team is evaluating similar existing trading programs in California, other parts of the country and internationally.



The program is anticipated to include the following general components:

Collaboration of stakeholders and GSA to define the water trading approach.

Identification of goals, guidelines and administrative tools for implementation.

Consolidation and reissue of existing groundwater restrictive easements in a consistent way.

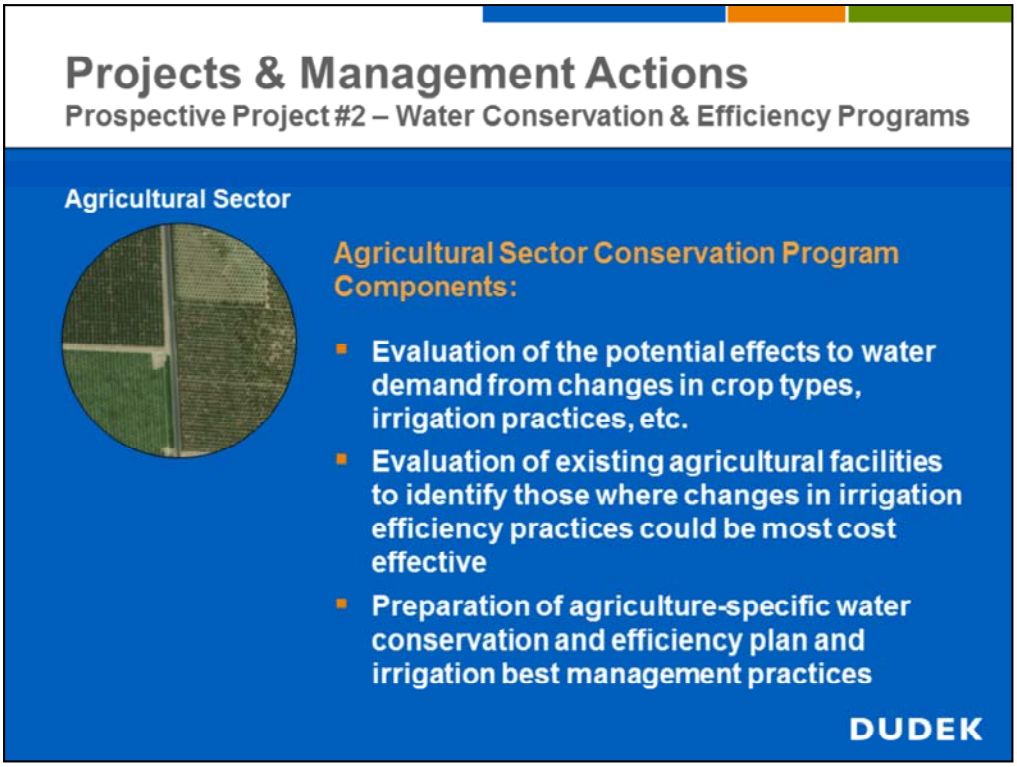
Development of a governing document to outline guidelines and regulatory procedures to transfer water credits.

Development of an accounting system to track baseline pumping allocation and water transfers

Evaluation will be performed to assess prospective opportunities for water conservation and efficiency for each of the three primary water use sectors in the subbasin, including agriculture, municipal, and recreation.

Considerations for each prospective opportunity would include ability to implement and cost/benefit relationship. The purpose of the potential programs would be to increase the water use efficiency of groundwater users in the Subbasin. Preliminary prospective opportunities will be evaluated by sector.

The conservation plans will consider both near-term conservation and long-term end-use efficiency.



An independent conservation plan will be developed for the agricultural sector to focus on opportunities unique to the agricultural sector.

The purpose of the plan will be to provide guidance to assist in meeting SGMA required pumping reductions as an agricultural operator.

The plan will present results of evaluations of different crop type water demands, irrigation infrastructure upgrade opportunities, and other water use efficiency recommendations.

An independent conservation plan will be developed for the recreational sector to focus on opportunities unique to sustainably operating a golf course or similar facility in the Subbasin.

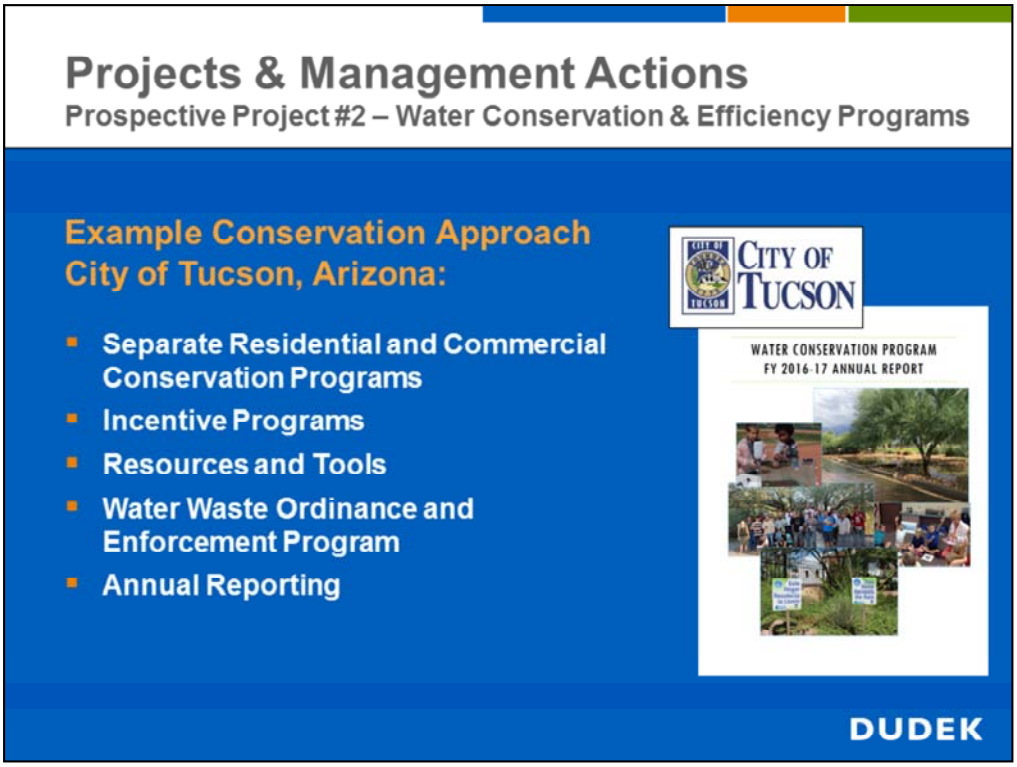
The purpose of the plan will be to provide guidance to assist in meeting SGMA required pumping reductions as a recreational operator.

The plan will present results of evaluations of water use efficiency opportunities, and other recommendations.

An independent conservation plan will be developed for the municipal sector.

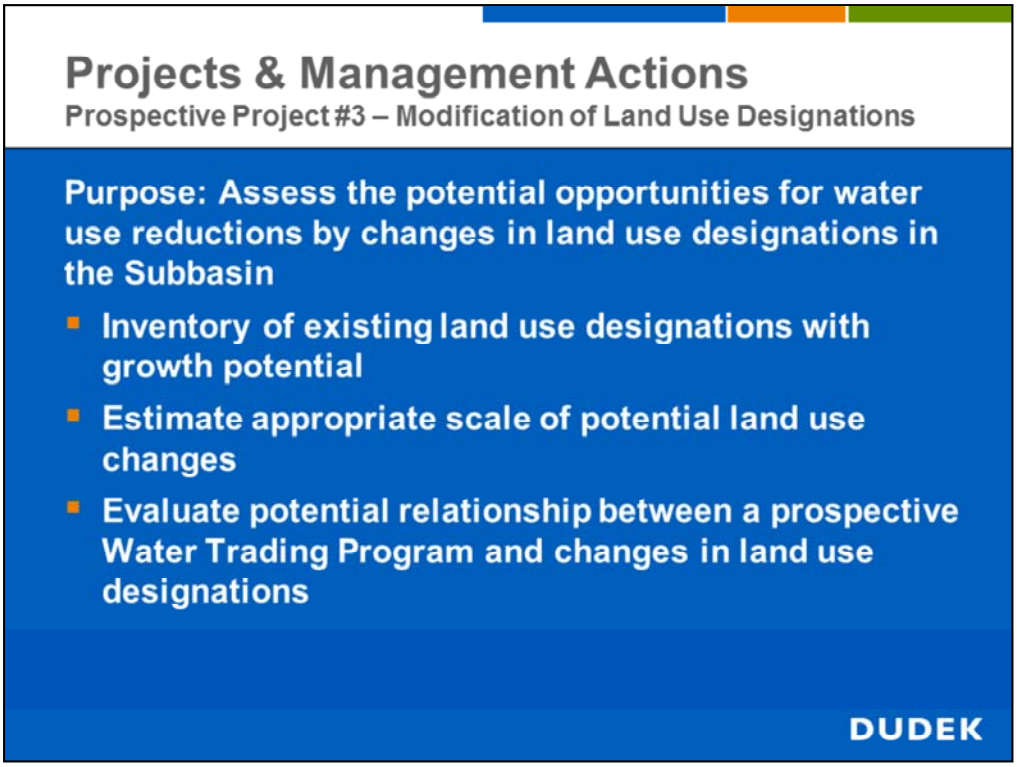
The purpose of the plan will be to provide guidance to the District and to water users/rate payer to assist the District in reducing per capita water use.

The plan is anticipated to include the results of past evaluations of water use efficiency, outline of water use reduction incentive programs, landscape irrigation restrictive requirements for new and existing developments, and provide guidance on other conservation opportunities.



The team is evaluating similar existing conservation programs in California, other parts of the country and internationally.

The City of Tucson is a successful example of an effective conservation program, and will be evaluated during the development process.



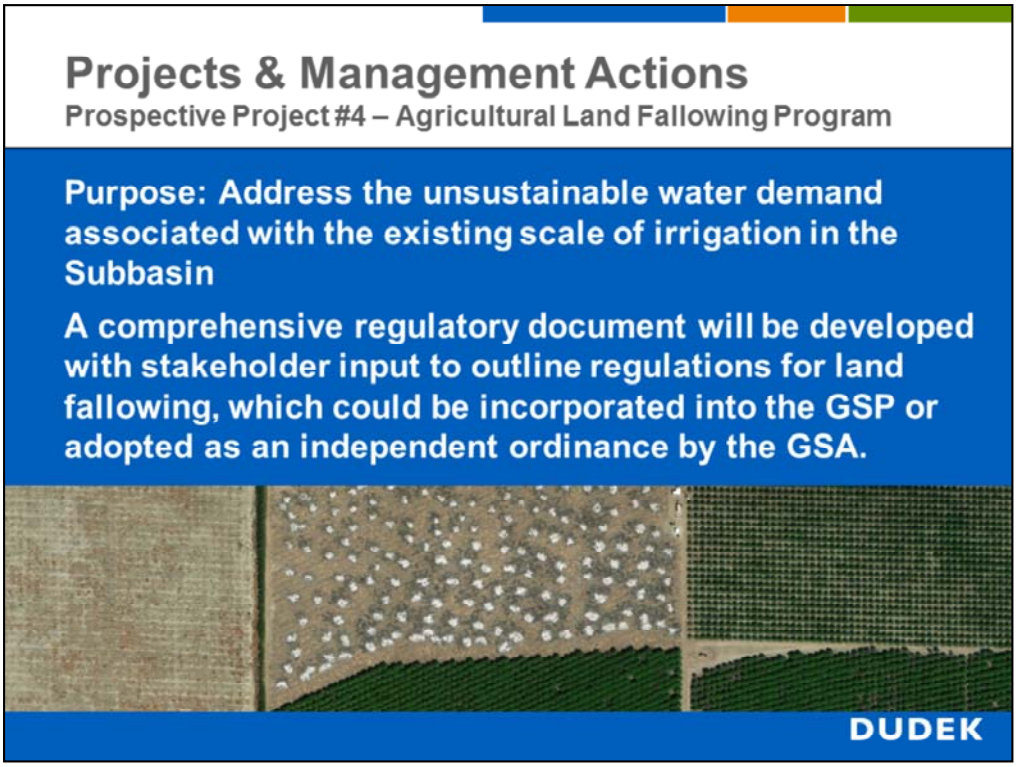
An initial evaluation will be performed to assess the potential opportunities for water use reductions by changes in land use designations in the Subbasin.

The scope of the evaluation will include the following general components:

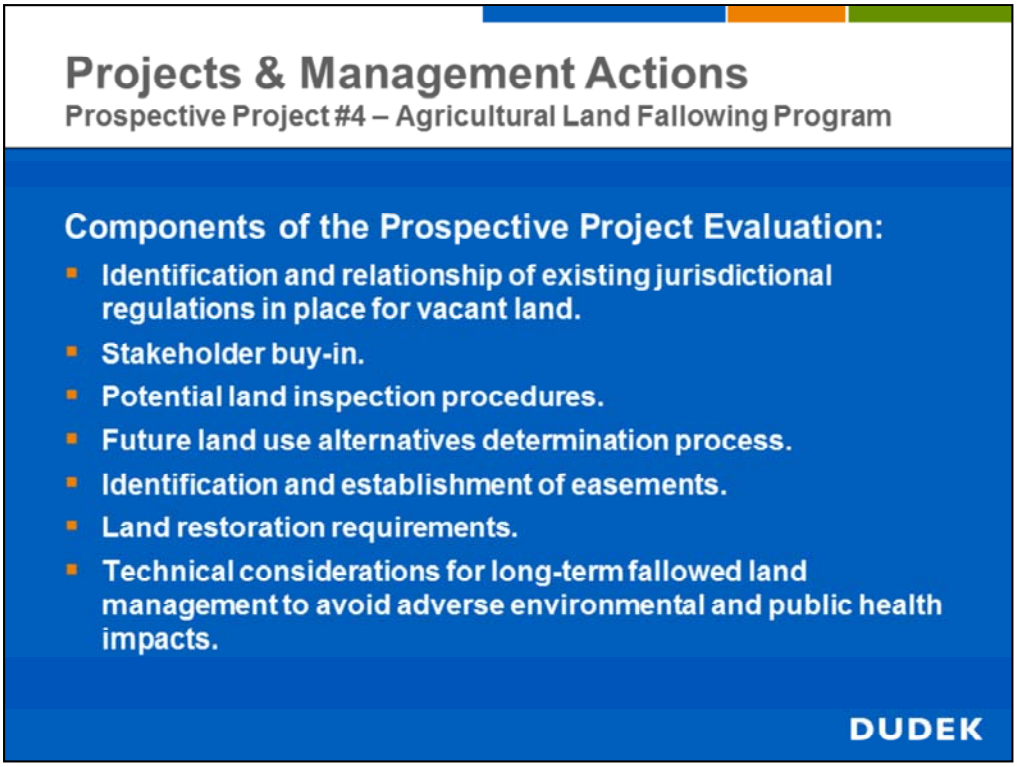
Identification of existing unbuilt residential-designated lots.

Estimate the appropriate scale of potential land use designation changes.

Evaluate the potential relationship between a prospective Water Trading Program and changes in land use designations in the subbasin.



An Agricultural Land Fallowing Program will be evaluated to address the unsustainable water demand associated with the existing scale and intensity of irrigation in the Subbasin. A comprehensive regulatory document will be developed with stakeholder input to outline regulations for land fallowing, which could be incorporated into the GSP or adopted as an independent ordinance by the GSA.



Key components of the document to be determined include the following:

Evaluate fallow land consistency with zoning ordinance, and whether there is a need for vacant land rezone, or special area regulation.

Stakeholder buy-in.

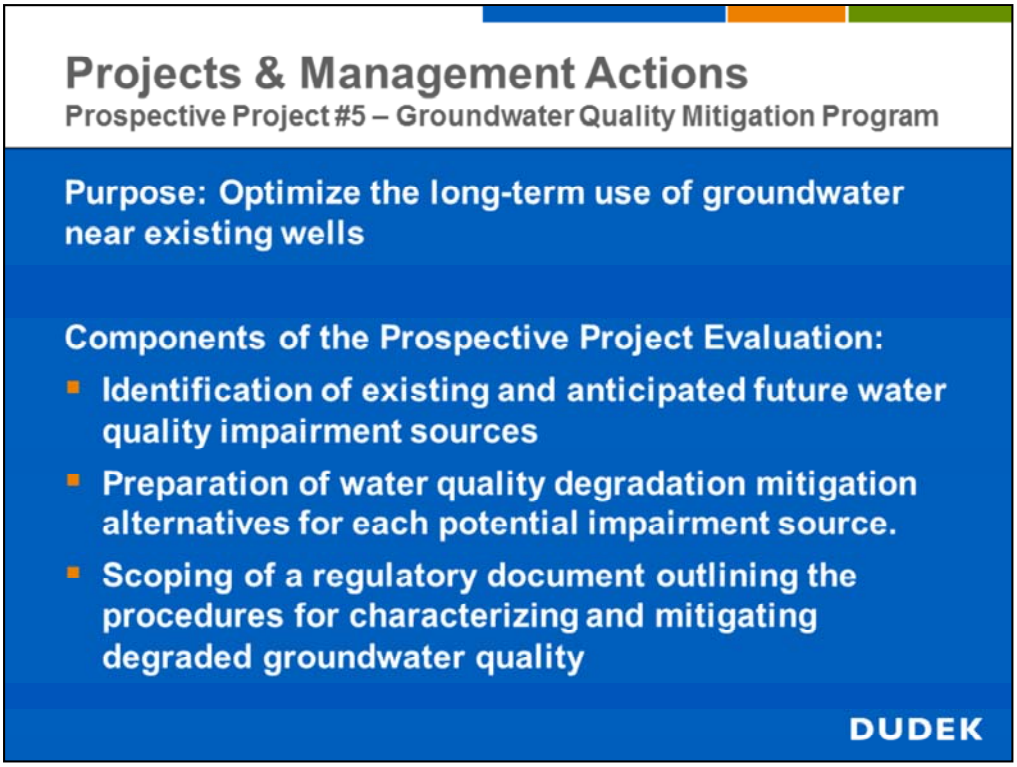
Potential land inspection procedures.

Future land use alternatives determination process.

Identification and establishment of easements.

Land restoration requirements.

Technical considerations for long-term fallowed land management to avoid adverse environmental and public health impacts.

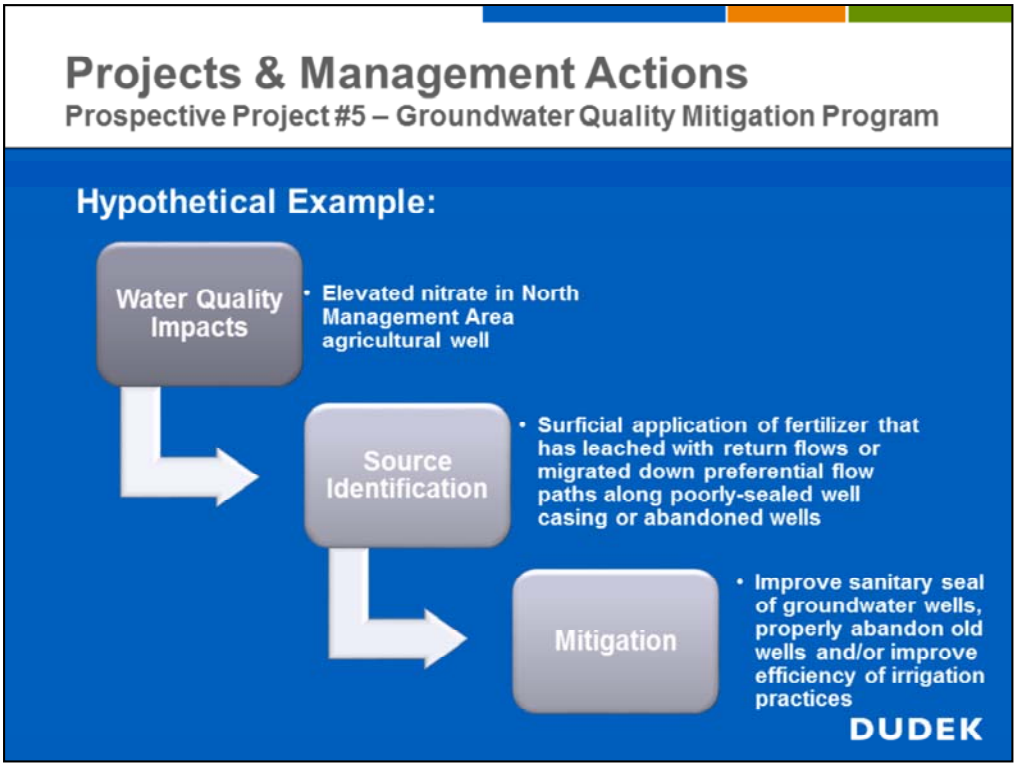


A Groundwater Quality Mitigation Program will be developed for the subbasin. The scope of the evaluation will include the following components:

Identification of existing and anticipated future water quality impairment sources.

Preparation of water quality degradation mitigation alternatives for each potential impairment source.

Scoping of a regulatory document outlining the procedures for characterizing and mitigating degraded groundwater quality.

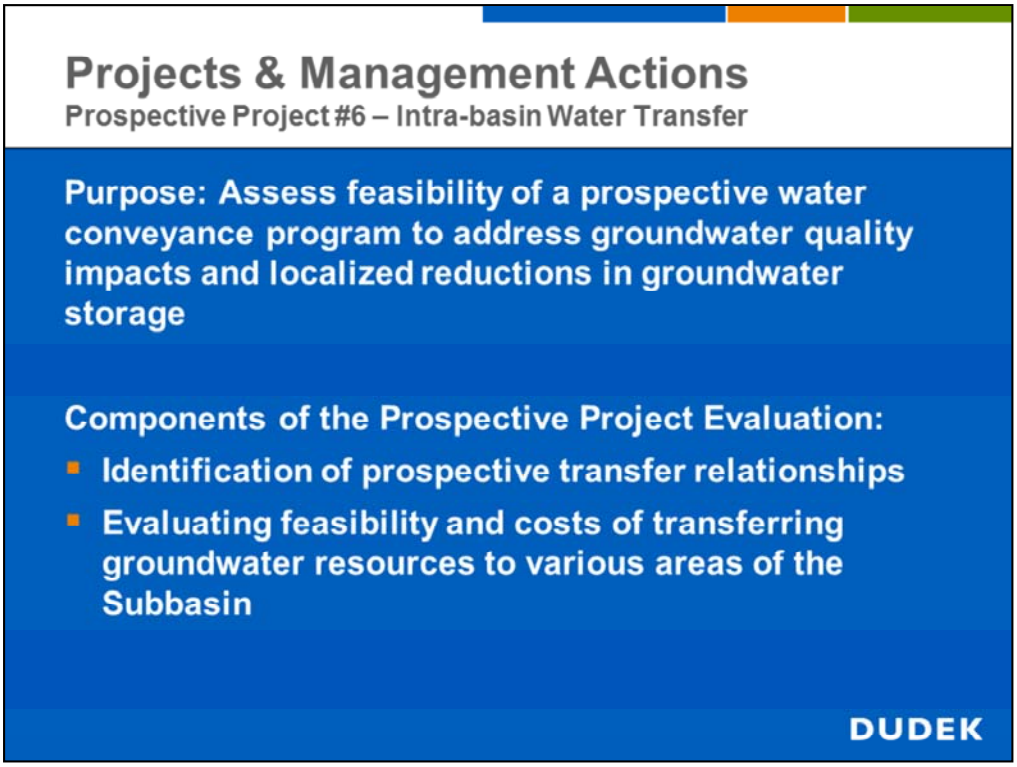


One example may be the potential for elevated nitrate to occur in the upper aquifer in the North Management Area.

Nitrate contamination is typically a surface source, commonly associated with application of fertilizers in agricultural areas.

Elevated detections of nitrate in groundwater are most likely attributable to one of two mechanisms: 1) leaching with return flow to the groundwater table through the unsaturated portion of the upper aquifer, or 2) migrating down preferential pathways along the well casing as a result of a poor sanitary seal on the well.

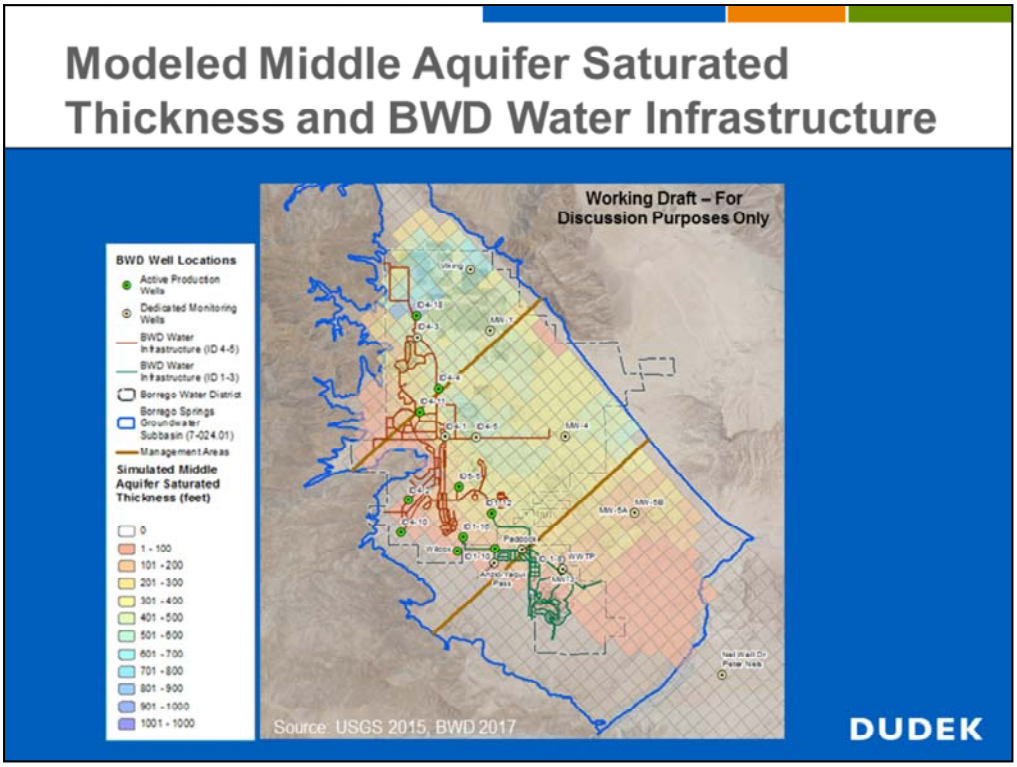
An analysis can be performed to determine the likely cause of the contamination, and may conclude that the well can be upgraded, or that it should be properly abandoned and relocated to improve water quality in the vicinity.



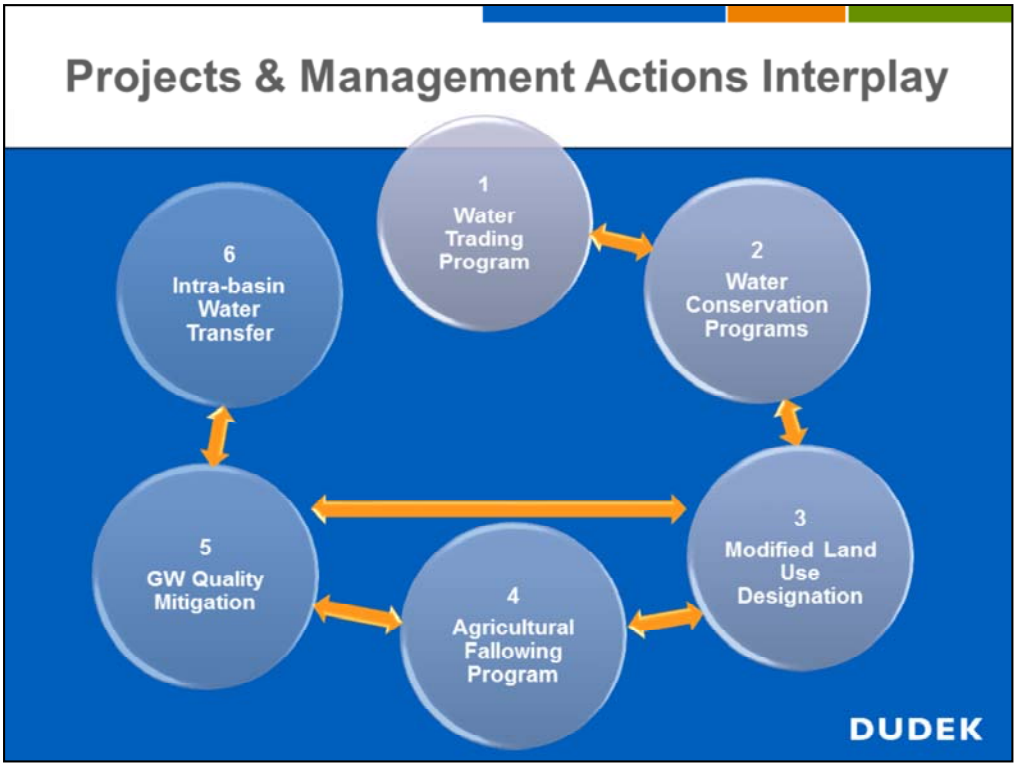
Potential mitigation of limited localized groundwater using intrabasin water transfer between Basin Management Areas will be evaluated. The evaluation will include assessment of a transfer program's effectiveness for addressing both groundwater quality impacts and reductions in groundwater storage.

The study will involve Borrego Water District (BWD) to assist with evaluating the feasibility and costs of transferring groundwater resources to different areas of the Subbasin.

Hypothetical examples of intra-basin water transfer may include construction of additional pipeline conveyances to facilitate blending of water to address water quality impairments, or construction of new wells and conveyance pipelines to produce groundwater from more optimal portions of the subbasin with lower likelihoods for undesirable results.



The District pipeline conveyance infrastructure currently comprised of five Improvement Districts and consists of four pressure zones. The District infrastructure is generally located in the western portion of the Subbasin where the saturated portion of the Middle Aquifer is relatively thin compared to the eastern portion of the Subbasin. Incorporating wells from the thicker saturated portions of the Middle Aquifer in lieu of the thinner portions may reduce likelihoods of undesirable results.



Several of the prospective projects are inter-related.

Some example may include:

1-2: A water trading program could enable a stakeholder to benefit from conservation efforts.

2-3: Modified land use designations could be a water conservation mechanism, and could support alternative land uses of higher value.

3-4-5: Change in land use can target areas in need of water quality mitigation; e.g., areas of intensive ag overlying rising nitrate concentrations could be modified to reduce nitrate source area.

5-6: GW quality mitigation by intra-basin transfer by blending high TDS or As water with higher quality water.