

2025 Blue Zones Project: Freese and Nichols Worksite Pledge

Study Guide

6-27-2025

Detailed Study Guide: Freese and Nichols (FNI) Projects and Agreements with the City of Shawnee

I. Overview of Freese and Nichols (FNI) Engagements with the City of Shawnee

FNI is a firm providing design and engineering services to the City of Shawnee. Their services span various infrastructure projects, including street improvements, water line replacements, culvert replacements, and dam rehabilitation.

FNI also undertakes professional services related to urban planning, such as developing a Unified Development Code (UDC).

Funding for projects often involves partnerships, such as the 50/50 grant with the Avedis Foundation for the Broadway project.

II. Key Projects and Services Provided by FNI

A. Broadway Street Improvements

Project Status: Approved for negotiations with FNI for design and engineering services, not a "done deal" for construction.

Purpose: To offer options for street improvements along Broadway.

Funding: Estimated \$1.2 million, 50/50 grant partnership with the Avedis Foundation.

Scope (Design Phase): Develop options for Broadway improvements, considering aspects like street width (40 feet), parking, bike lanes, and lamp posts. The goal is to create a plan that can be surveyed with residents for compromise.

Controversy/Concerns: Some commissioners expressed concerns about prioritizing Broadway over other streets needing repair and the unknown appearance and impact of improvements. The role of the "Blue Zones Project" was also clarified as not dictating commission decisions.

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B. Clearpond Road Culvert Replacement

Project Number: SWN23456

Services: Conceptual Design: Development of horizontal and vertical layout for roadway and culvert.

Final Design: Evaluation of headwall geometry and modifications to drainage infrastructure; culvert sizing based on Stream Stats data and HY-8.

Surveying Support: Topographic data collection, OKIE ticket submission for utilities, right-of-way depiction, public utility location (sewer, storm, water) and verification, benchmark establishment.

Geotechnical Exploration: Advancing borings, collecting samples, downhole testing, measuring water levels, patching boreholes. Traffic control assumed not required due to road closure.

Contractual Terms (Specific to Culvert Replacement): Subcontracting: City can request cancellation of incompetent/undesirable subcontractors.

Purchase Orders: Terms on POs apply, but the main agreement prevails in case of conflict.

Successors and Assignments: Neither party can assign or sublet rights without written consent, with exceptions for legal mandates.

C. Water Line Replacements (Park Street, Midland Addition, Alice/Fay/Edwards/Pesotum, Independence/Thompson Heights/Sewer Pipe Bursting)

General Scope of Services (Common across projects): Topographic and SUE Survey: Full topographic data, OKIE ticket for underground utilities, right-of-way data, locating public utilities (sewer, storm, water) and verifying pipe sizes/materials, establishing benchmarks.

Environmental Clearance: Desktop evaluation, documentation, and report submission for categorical exclusion (e.g., to OWRB/ODEQ for funding). May not include site visits for field verification.

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Bid/Negotiation Phase: Assisting the City in securing bids (Notice to Bidders, distributing documents), responding to questions, issuing addenda, assisting with bid opening and analysis, recommending contract awards.

Construction Phase (Inspection): Providing a full-time, knowledgeable resident inspector to ensure sound engineering principles, report progress, confirm material usage, approve pay applications, and resolve landowner issues. Inspector follows OWRB ORF-151 Daily Construction Report and FNI procedures, ensures testing compliance with AWWA, AASHTO, ASTM, and ODOT standards.

Specifics for Midland Addition Waterline: Includes Water System Model development for ODEQ permitting, fire flow analysis, and ODEQ permit application submission (FNI pays fee, City reimburses).

Invoices and Payments: Vendor history reports show payments to FNI for various water line projects, including Park Street, Midland Addition, Independence Waterline, Thompson Heights, and Sewer Pipe Bursting.

D. Shawnee Twin Lake Dam #1 Rehabilitation

Purpose: Address degraded riprap on the upstream slope and spillway, and clear vegetation on the lower slope and toe of the dam.

Scope (Amendment #1): Includes dam breach modeling, inundation mapping, and dam safety engineering services.

Dam Hazard Classification: Currently classified as high hazard by OWRB.

Inundation Maps: To be prepared based on dam breach model results, showing depth and depth x velocity, using aerial imagery and appropriate basemap layers.

Riprap Project: Includes 90% and 100% submittals within specified days of NTP/review comment resolution.

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Payment Records: Vendor history report shows significant payments for "SHAWNEE TWIN LAKE DAM REHAB."

E. Unified Development Code (UDC)

Purpose: Consolidate the City's Zoning Code, Sign Regulations, and Subdivision Regulations into a single, streamlined UDC.

Process: FNI works with City staff to determine the disposition of existing Chapter 22 Articles. The project involves multiple phases of drafting, review, revision, and presentation to City staff, Planning Commission (PC), and City Commission (CC).

Payment Records: Vendor history reports show consistent payments for "New Unified Development Code contract" and "BASIC SERVICES - UNIFIED DEVELOPMENT CODE."

III. General Contractual Terms and Conditions (FNI with City)

Definitions: "Client" refers to the City of Shawnee, "FNI" refers to Freese and Nichols, Inc. (including employees, agents, subcontractors). "Services" refers to professional services by FNI.

Changes: Client can order changes to the scope of work; equitable adjustment for cost/time increases/decreases requires mutual agreement and written modification.

Subcontracts: City can notify FNI if a subcontractor is incompetent or undesirable, and FNI must take steps for cancellation. No direct contractual relation between subcontractor and City.

Purchase Orders: If used, only typed terms on the PO apply; the main agreement prevails in case of conflict.

Successors and Assignments: Both parties are bound to the other and their successors/representatives. Neither party can assign, sublet, or transfer rights without written consent, unless mandated by law. Assignment does not release the assignor unless stated. FNI can employ independent associates/consultants.

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IV. Roles and Responsibilities

FNI's Role (General): Provide professional design, engineering, and consulting services.

City's Role (General): Provide access to public and private property for FNI's services.

Examine documents provided by FNI and render written decisions in a timely manner.

Pay for publication costs (e.g., Notice to Bidders).

Reimburse FNI for permit fees (e.g., ODEQ permit for Midland Addition).

Make or arrange for subsurface investigations (borings, test pits, soil resistivity surveys) and interpret their data/reports, bearing all associated costs.

Provide necessary data for FNI's models (e.g., water line GIS data, as-built plans, population projections for Midland Addition water system model).

FNI's Resident Project Representative (RPR) limitations (Dam Rehabilitation context): Cannot authorize deviations from Contract Documents or material substitutions without City approval.

Cannot exceed limitations of City's/FNI's authority.

Cannot undertake Contractor/Subcontractor responsibilities.

Cannot advise on/issue directions for construction

means/methods/techniques/sequences/procedures unless required by Contract Documents.

Cannot advise on/issue directions for/assume control over safety precautions/programs.

V. Cost and Payments

Broadway Project: Estimated \$1.2 million total, with design/engineering contract potentially 20% (\$240,000).

FNI Rates: Detailed hourly rates for various professional levels, construction managers, construction representatives, and CAD technicians/designers are provided, ranging from \$38/hour (Intern/Coop) to \$370/hour (Professional 6).

Vendor History Reports: Show total payments to FNI from May 20, 2022, to May 14, 2025, exceeding \$1.2 million for various projects, including UDC, water line replacements, and dam rehabilitation.

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Invoice Details: Invoices show breakdowns by project phase (e.g., design, bid, construction, topographic survey), billing amounts, and remaining fees. They also detail labor hours, cost rates, multipliers, and unit rate expenses (mileage, technology charges).

VI. External Entities and Regulations

Avedis Foundation: 50/50 grant partner for the Broadway project.

Blue Zones Project: Clarified as a program that recommends policies, but does not dictate commission decisions or pass regulatory regimes.

Oklahoma Water Resources Board (OWRB): Regulates dam safety (classifies Shawnee Twin Lake Dam as high hazard), provides ORF-151 Daily Construction Report for inspectors, and is a recipient of environmental clearance documents for funding.

Oklahoma Department of Environmental Quality (ODEQ): Requires construction permits for projects like water line replacements; also receives environmental clearance documents.

Oklahoma Department of Transportation (ODOT): Used for standard culvert detail sizes; inspectors ensure compliance with ODOT published procedures.

American Water Works Association (AWWA), American Association of State Highway and Transportation Officials (AASHTO), American Society of Testing and Materials (ASTM): Standards used by FNI inspectors for testing procedures.

CALL OKIE Service (811): Used to aid in the location of underground utilities.

Pottawatomie County Assessor's Office: Source for right-of-way data and property information. Oklahoma State Plane Coordinate System South Zone (3502) and North American Vertical Datum (NAVD 88): Coordinate systems used for survey benchmarks.

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Quiz: FNI Projects and Agreements with the City of Shawnee

Instructions: Answer each question in 2-3 sentences.

What is the current status of the Broadway project with Freese and Nichols (FNI), and what is its primary purpose?

How is the Broadway project expected to be funded, and what is the estimated total cost?

Describe two specific services FNI provides related to topographic surveying across multiple water line replacement projects.

What is the role of the FNI resident inspector during the construction phase of a project like the Shawnee Waterline Independence?

What is the primary objective of the Unified Development Code (UDC) project undertaken by FNI for the City of Shawnee?

According to the "Clearpond Culvert Replacement Contract," what action must FNI take if the City determines a subcontractor is incompetent or undesirable?

What is the current hazard classification of Shawnee Twin Lake Dam #1, and what type of mapping is FNI preparing based on dam breach modeling?

Identify two types of data or information the City of Shawnee is expected to provide to FNI for the water system model development in the Midland Addition Waterline project.

Based on the contractual terms, can either the City or FNI assign or transfer their rights under an agreement without the other's consent? Explain briefly.

What is a key limitation on the authority of FNI's Resident Project Representative (RPR) during the construction phase?

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Quiz Answer Key

The Broadway project is currently approved for negotiations to hire FNI for design and engineering services, not for construction itself. Its primary purpose is to offer various options for street improvements along Broadway.

The Broadway project is expected to be funded by a 50/50 grant partnership with the Avedis Foundation. The estimated total cost for the project as a whole is \$1.2 million.

For water line replacement projects, FNI provides services like obtaining full topographic data within survey limits and submitting OKIE tickets to locate underground utilities. They also establish benchmarks and utilize City atlas sheets to locate public utilities.

The FNI resident inspector's role is to ensure sound engineering principles and building practices, report on project progress, and confirm correct usage of materials. They also approve pay applications and help resolve landowner issues.

The primary objective of the Unified Development Code (UDC) project is to consolidate the City's existing Zoning Code, Sign Regulations, and Subdivision Regulations. This creates a single, streamlined point of reference for all land development regulations in Shawnee.

If the City determines a subcontractor for FNI is incompetent or undesirable, the City must notify FNI accordingly. FNI is then required to take immediate steps for the cancellation of such subcontract.

Shawnee Twin Lake Dam #1 is currently classified as a high hazard dam according to OWRB Dam Safety criteria. FNI is preparing breach inundation maps showing depth and depth x velocity based on the dam breach model results.

For the Midland Addition Waterline project, the City is expected to provide FNI with water line GIS data and as-built plans for the Edwards Elevated Storage Tank. They also need to provide Citywide Population Projection and average day water production.

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Generally, neither the City nor FNI can assign, sublet, or transfer any rights under the agreement without the written consent of the other party. However, exceptions apply if such assignment, subletting, or transfer is mandated by law.

A key limitation on the RPR's authority is that they cannot authorize any deviation from the Contract Documents or substitution of materials or equipment unless explicitly approved by the City. They also cannot assume the responsibilities of the contractor or advise on construction means and methods unless required by contract.

Essay Format Questions

Analyze the various types of infrastructure projects Freese and Nichols (FNI) undertakes for the City of Shawnee, providing specific examples and outlining the typical phases involved in these projects.

Discuss the financial aspects of FNI's engagements with the City of Shawnee, including funding sources, estimated project costs, and the types of billing details provided in their invoices.

Compare and contrast the roles and responsibilities of Freese and Nichols (FNI) and the City of Shawnee as outlined in their agreements, highlighting areas of collaboration and specific limitations on FNI's authority.

Evaluate the importance of accurate surveying and utility identification in FNI's projects, using examples from the Clearpond Road Culvert Replacement and water line replacement projects to support your points.

Explain the purpose and process of developing a Unified Development Code (UDC) for the City of Shawnee, detailing FNI's role in this urban planning initiative and its significance for the city's future development.

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Glossary of Key Terms

Addenda: Written information or instructions that clarify, modify, or add to the bid documents. Issued during the bid phase to plan holders if necessary.

Avedis Foundation: A foundation partnering with the City of Shawnee to provide a 50/50 grant for the Broadway street improvement project.

AWWA (American Water Works Association): A professional organization that develops standards for water treatment and distribution; FNI inspectors ensure compliance with their procedures.

AASHTO (American Association of State Highway and Transportation Officials): A standards-setting body for highway design and construction; FNI inspectors ensure compliance with their procedures.

ASTM (American Society of Testing and Materials): An international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services; FNI inspectors ensure compliance with their procedures.

Benchmarks/Control Points: Established points with known coordinates and elevations, used as reference for surveying and construction projects.

Blue Zones Project: An initiative mentioned in relation to the Broadway project, clarified as providing policy recommendations rather than dictating regulatory regimes to the City Commission.

CAD file: Computer-Aided Design file, a digital format used for technical drawings and designs, provided by FNI for surveying support services.

CALL OKIE service (811): A service for locating underground utilities before excavation to prevent damage.

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Categorical Exclusion (CATEX): A type of environmental review that allows projects to proceed without a detailed environmental impact statement if they meet certain criteria and have no significant environmental impact.

City Commission (CC): The governing body of the City of Shawnee, involved in voting on projects and receiving presentations from FNI.

Client: Refers to the City of Shawnee in agreements with Freese and Nichols, Inc.

Contract Documents: The collection of documents forming the legal agreement between the City and FNI for a project, including drawings, specifications, and terms.

Culvert: A tunnel-like structure, typically made of concrete or metal, that allows water to flow under a road, railway, or embankment.

Dam Breach Modeling: Simulation of the potential failure of a dam and the resulting flood inundation, used to evaluate downstream hazard classification and prepare inundation maps.

Design Phase: The initial stage of a project where FNI develops plans, drawings, and specifications based on project requirements.

EFT Payment Summary: Electronic Funds Transfer Payment Summary, a record of payments made electronically.

Environmental Clearance: The process of obtaining approvals from regulatory agencies (like OWRB/ODEQ) by demonstrating that a project complies with environmental regulations, often through desktop evaluations and reports.

FNI (Freese and Nichols, Inc.): The firm providing engineering, design, and professional services to the City of Shawnee.

Geotechnical Exploration: Investigation of subsurface conditions, including soil borings and testing, to gather data for foundation design and other engineering purposes.

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GIS mapping system (Geographic Information System): A system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data, used by FNI for water system modeling.

Headwall: A small retaining wall at the inlet or outlet of a culvert or pipe, used to prevent erosion and stabilize the embankment.

HDPE (High-Density Polyethylene): A type of plastic pipe material anticipated for use in some water line replacement projects.

Hydrology and Hydraulic (H&H) Calculations: Engineering analyses used to determine water flow characteristics, important for culvert sizing and dam breach modeling.

HY-8: A software program commonly used for hydraulic analysis and design of culverts.

Inundation Mapping: Maps showing the extent and characteristics (e.g., depth, velocity) of flooding, typically prepared after dam breach modeling.

NAVD 88 (North American Vertical Datum of 1988): The vertical control datum for surveying and mapping in North America.

Notice to Bidders: A formal announcement inviting contractors to submit bids for a construction project.

NTP (Notice to Proceed): A formal notification from the client (City) to the contractor or consultant (FNI) authorizing them to begin work on a project.

ODEQ (Oklahoma Department of Environmental Quality): State agency responsible for environmental permits, such as construction permits for water lines.

ODOT (Oklahoma Department of Transportation): State agency responsible for transportation infrastructure; FNI may use their standard detail sizes for culverts and ensure compliance with their procedures.

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OKIE ticket: Refers to the notification submitted to the OKIE (Oklahoma One-Call System) service before digging, to locate underground utilities.

ORF-151 Daily Construction Report: A specific daily report form provided by the OWRB, followed by FNI's resident inspectors.

OWRB (Oklahoma Water Resources Board): State agency responsible for water resources and dam safety in Oklahoma.

Pay Applications: Requests for payment submitted by a contractor or consultant for work completed.

Planning Commission (PC): A municipal body responsible for advising the City Commission on planning and zoning matters, involved in the UDC project.

Pottawatomie County Assessor's Office: The county office responsible for assessing property values and maintaining property records, including right-of-way data.

PS&E Submittal (Plans, Specifications, and Estimates): A common acronym for the complete set of documents required for bidding and constructing a project.

Resident Project Representative (RPR): An FNI employee (inspector) who is physically present at the construction site to observe the work and report on its progress and compliance.

RFQ (Request for Qualifications): A document issued by an organization to solicit interest from qualified vendors for a project, as seen with the Broadway project.

Riprap: A layer of loose rock used to protect soil surfaces from erosion, particularly on dam slopes and spillways.

SCADA (Supervisory Control and Data Acquisition): A system used for monitoring and controlling industrial processes, such as water systems.

Services: The professional services performed by FNI pursuant to their agreements with the City.

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Stream Stats: A web-based application that provides streamflow statistics and basin characteristics for ungauged sites.

Subdivision Regulations: Rules governing the division of land into smaller lots for development, to be consolidated into the UDC.

Subsurface Utility Engineering (SUE): A process for accurately mapping underground utilities, involving various quality levels (e.g., Quality Level B).

Successors and Assignments: Legal terms specifying that agreements are binding on subsequent parties and that rights cannot be transferred without consent.

Topographic Survey: A survey that measures and maps the features of the land, including elevation changes, natural features, and man-made structures.

Unified Development Code (UDC): A single regulatory document consolidating zoning, sign, and subdivision regulations to streamline land development.

Vendor History Report: A financial report detailing payments made to a specific vendor over a period.

Zoning Code: Local laws that regulate how land can be used and developed, to be consolidated into the UDC.

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