



Banking Knowledge Base - Sample Documents

Document 1: Commercial Loan Handbook (loan_handbook.md)

Chapter 3: Commercial Real Estate Lending

Commercial real estate loans are secured by income-producing properties and require comprehensive financial analysis. Our institution follows strict underwriting guidelines as outlined in Policy Document CRE-2024-001 (see Section 4.2 for complete risk assessment matrix).

Table 3.1: Loan-to-Value Ratios by Property Type

| Property Type | Maximum LTV | Minimum DSCR | Required Reserves |
|-------------------------|-------------|--------------|-------------------|
| Office Buildings | 75% | 1.25x | 6 months P&I |
| Retail Centers | 70% | 1.30x | 8 months P&I |
| Industrial Warehouse | 80% | 1.20x | 4 months P&I |
| Multi-Family (5+ units) | 75% | 1.25x | 6 months P&I |
| Mixed-Use Properties | 65% | 1.35x | 9 months P&I |

Note: All ratios subject to modification based on market conditions. Refer to Table 3.2 for current market adjustments.

Table 3.2: Market Condition Adjustments (Effective Q2 2024)

| Market Tier | LTV Adjustment | Rate Premium | Additional Documentation |
|---------------------------|----------------|--------------|-------------------------------|
| Tier 1 (Major Metro) | No adjustment | Base rate | Standard package |
| Tier 2 (Secondary Cities) | -5% LTV | +0.25% | Market study required |
| Tier 3 (Rural/Emerging) | -10% LTV | +0.50% | Full appraisal + market study |

Section 3.4: Amortization Schedules

Standard commercial loans follow a 25-year amortization schedule with various term options:

Table 3.3: Standard Loan Terms and Pricing

| Loan Amount | Term (Years) | Base Rate* | Origination Fee | Prepayment Penalty |
|---------------|--------------|---------------|-----------------|--------------------|
| \$500K - \$1M | 5 | Prime + 1.25% | 1.00% | 3-2-1 declining |
| \$1M - \$5M | 7 | Prime + 1.00% | 0.75% | 3-2-1 declining |
| \$5M - \$15M | 10 | Prime + 0.75% | 0.50% | 2-1-0 declining |
| \$15M+ | Negotiable | Prime + 0.50% | 0.25% | Negotiable |

- Base rates subject to credit quality adjustments as defined in Credit Policy Manual Section 2.7.

Cross-Reference Note

For complete underwriting guidelines, see Table 4.1 in Chapter 4. Interest rate calculations must comply with Regulation Z requirements detailed in Compliance Manual CM-2024-003.

Document 2: Regulatory Compliance Manual (compliance_manual.md)

Section 2: Truth in Lending Act (TILA) Requirements

The Truth in Lending Act requires specific disclosures for closed-end credit transactions. Our bank must comply with all provisions outlined in 12 CFR 1026.

Table 2.1: Required TILA Disclosures by Loan Type

| Loan Category | APR Calculation | Finance Charge | Right to Cancel | Special Disclosures |
|-------------------------|----------------------|--------------------------|-----------------|----------------------------|
| Purchase Money Mortgage | Include all fees | All charges except taxes | 3-day right | CHARM booklet if ARM |
| Refinance Mortgage | Include all fees | All charges except taxes | 3-day right | CHARM booklet if ARM |
| Home Equity Line | Variable rate method | Interest + certain fees | 3-day right | Variable rate disclosure |
| Commercial Real Estate | Simplified method | Interest only | Not applicable | Business purpose statement |
| Consumer Auto Loans | Standard method | All finance charges | Not applicable | GAP insurance disclosure |

Table 2.2: Fee Categorization Matrix

| Fee Type | Include in Finance Charge | Include in APR | Disclosure Timing |
|--------------------------|---------------------------|----------------|-------------------|
| Origination Fee | Yes | Yes | Application |
| Appraisal Fee | No (if actual cost) | Yes | Application |
| Credit Report Fee | No (if actual cost) | Yes | Application |
| Flood Certification | No | Yes | Application |
| Title Insurance | No | No | Closing |
| Recording Fees | No | No | Closing |
| Attorney Fees (Lender's) | Yes | Yes | Application |
| Lock-in Fee | Yes | Yes | Application |

Section 2.3: High-Cost Mortgage Provisions

Loans meeting the thresholds in Table 2.3 are subject to additional restrictions under Section 1026.32.

Table 2.3: High-Cost Mortgage Thresholds (2024)

| Loan Amount | APR Threshold | Points & Fees Threshold |
|--------------------|-------------------------------|--------------------------|
| \$27,200 or more | First lien: APOR + 6.5% | Greater of \$1,360 or 5% |
| \$27,200 or more | Subordinate lien: APOR + 8.5% | Greater of \$1,360 or 5% |
| Less than \$27,200 | First lien: APOR + 6.5% | 20% of loan amount |
| Less than \$27,200 | Subordinate lien: APOR + 8.5% | 20% of loan amount |

Critical Compliance Note: All calculations must reference the Average Prime Offer Rate (APOR) tables published weekly by the CFPB. See Table A-1 in Appendix A for current rates.

Document 3: Internal Policy Manual (policy_manual.md)

Policy Section 4: Credit Risk Management

This section establishes the framework for credit risk assessment across all lending products. All loan officers must complete annual training on these policies (see Training Matrix in Section 7.2).

Policy 4.1: Commercial Lending Authority Limits

Individual lending authorities are established based on experience, training, and portfolio performance. Current authority limits are detailed in Table 4.1.

Table 4.1: Lending Authority Matrix

| Position Level | Unsecured Limit | Secured RE Limit | Commercial Limit | Override Authority |
|---------------------|-----------------|------------------|------------------|--------------------|
| Loan Officer I | \$25,000 | \$150,000 | \$100,000 | None |
| Loan Officer II | \$50,000 | \$300,000 | \$250,000 | VP approval req'd |
| Senior Loan Officer | \$100,000 | \$500,000 | \$400,000 | AVP approval req'd |
| Assistant VP | \$200,000 | \$1,000,000 | \$750,000 | SVP approval req'd |
| Vice President | \$500,000 | \$2,000,000 | \$1,500,000 | President approval |
| Senior VP | \$1,000,000 | \$5,000,000 | \$3,000,000 | Board committee |

Section 4.2: Risk Rating System

All commercial loans must be assigned a risk rating using our 9-point scale. The rating directly impacts pricing, monitoring frequency, and reserve requirements.

Table 4.2: Risk Rating Definitions and Actions

| Rating | Definition | DSCR Range | Monitoring | Reserve Requirement |
|------------------|---------------------------------|------------|---------------|---------------------|
| 1 - Superior | Minimal risk, strong financials | >1.50x | Annual review | 0.25% |
| 2 - Strong | Low risk, solid performance | 1.35-1.50x | Annual review | 0.50% |
| 3 - Satisfactory | Acceptable risk | 1.25-1.35x | Semi-annual | 0.75% |

| Rating | Definition | DSCR Range | Monitoring | Reserve Requirement |
|---------------------|-------------------------------------|------------|------------|---------------------|
| 4 - Pass/Watch | Mild weakness, monitor closely | 1.15-1.25x | Quarterly | 1.25% |
| 5 - Special Mention | Potential weakness developing | 1.05-1.15x | Monthly | 2.00% |
| 6 - Substandard | Well-defined weakness | 0.95-1.05x | Monthly | 15.00% |
| 7 - Doubtful | Collection/liquidation questionable | <0.95x | Weekly | 50.00% |
| 8 - Loss | Uncollectible | N/A | Daily | 100.00% |

Cross-Reference: Pricing adjustments for risk ratings 4-5 are detailed in Rate Sheet RS-2024-Q2 (see Table RS-3).

Policy 4.3: Concentration Limits

To manage portfolio risk, the bank maintains the following concentration limits:

Table 4.3: Portfolio Concentration Guidelines

| Category | Maximum % of Capital | Current Level | Action Required If Exceeded |
|-------------------------------|----------------------|---------------|-----------------------------|
| Commercial Real Estate | 300% | 245% | Board notification |
| Construction & Development | 100% | 78% | Executive committee review |
| Single Borrower (non-related) | 15% | 12% | Credit committee approval |
| Related Borrower Group | 25% | 18% | Board approval required |
| Geographic - Single MSA | 40% | 35% | Monthly monitoring |
| Industry - Healthcare | 25% | 22% | Quarterly stress testing |
| Industry - Hospitality | 15% | 11% | Enhanced monitoring |

Important Note

All concentration calculations use the methodology outlined in Regulatory Guidance RG-2024-007. Refer to Table B-2 in the Compliance Manual for specific calculation examples.

Document 4: Current Rate Sheet (rate_sheet.md)

First National Bank - Rate Sheet Effective: June 1, 2024

This rate sheet supersedes all previous versions. Rates are subject to change without notice. For complete terms and conditions, refer to the Commercial Loan Handbook Chapter 3.

Table RS-1: Base Interest Rates (Prime = 8.50%)

| Product Type | Rate Index | Margin | Floor Rate | Ceiling Rate |
|---|------------|------------------|------------|--------------|
| Commercial Real Estate - Owner Occupied | Prime | +0.75% to +1.25% | 6.00% | 15.00% |

| Product Type | Rate Index | Margin | Floor Rate | Ceiling Rate |
|-------------------------------------|------------|------------------|------------|--------------|
| Commercial Real Estate - Investment | Prime | +1.00% to +1.75% | 6.50% | 15.00% |
| Commercial Lines of Credit | Prime | +0.50% to +1.50% | 5.50% | 18.00% |
| Equipment Financing | Prime | +0.25% to +1.00% | 5.00% | 12.00% |
| SBA 7(a) Loans | Prime | +2.75% | 11.25% | 18.00% |
| Construction Loans | Prime | +1.25% to +2.00% | 7.00% | 16.00% |

Table RS-2: Margin Adjustments by Risk Rating

This table works in conjunction with Table 4.2 from the Policy Manual for risk-based pricing.

| Risk Rating | Margin Adjustment | Additional Fee | Special Conditions |
|---------------------------|----------------------|--------------------|---------------------|
| 1-2 (Superior/Strong) | Base margin - 0.25% | None | Preferred pricing |
| 3 (Satisfactory) | Base margin | Standard | Standard terms |
| 4 (Pass/Watch) | Base margin + 0.50% | +0.25% origination | Quarterly reporting |
| 5 (Special Mention) | Base margin + 1.00% | +0.50% origination | Monthly reporting |
| 6+ (Substandard or worse) | Case-by-case pricing | +1.00% origination | Weekly reporting |

Table RS-3: Term-Based Pricing Adjustments

| Loan Term | Rate Adjustment | Amortization | Balloon Payment |
|-------------|-----------------|--------------------------|-----------------|
| 1-3 years | -0.25% | Interest only or 25-year | Full principal |
| 4-5 years | Base rate | 20 or 25-year | Full principal |
| 6-7 years | +0.25% | 25-year | Full principal |
| 8-10 years | +0.50% | 25-year | Full principal |
| 11-15 years | +0.75% | 25-year | Full principal |

Special Programs and Exceptions

Table RS-4: Special Lending Programs

| Program Name | Eligibility | Rate Benefit | Maximum Amount | Special Requirements |
|---------------------------|---------------------------|---------------|----------------|--------------------------|
| Community Development | Qualified census tracts | -0.50% margin | \$2,000,000 | CRA compliance review |
| Green Building Initiative | LEED certified properties | -0.25% margin | \$5,000,000 | Energy audit required |
| Veteran-Owned Business | 51%+ veteran ownership | -0.75% margin | \$1,000,000 | DD-214 verification |
| Small Business Express | <\$150K, <5 employees | Prime + 0.50% | \$150,000 | Streamlined underwriting |

Cross-References and Important Notes

- **Loan-to-Value requirements:** See Table 3.1 in Commercial Loan Handbook
- **Fee schedule:** Reference Table 2.2 in Compliance Manual for proper categorization
- **Authority limits:** All loans must comply with limits in Policy Manual Table 4.1
- **Risk rating impact:** Use Table 4.2 for reserve requirements and monitoring frequency

Rate Lock Policy: Rates may be locked for 30, 60, or 90 days with appropriate fees as detailed in Table F-1 of the Fee Schedule document.

Document 5: Fee Schedule (fee_schedule.md)

First National Bank Fee Schedule - Effective January 1, 2024

All fees are subject to change with 30-day notice except where prohibited by law. This schedule must be read in conjunction with Truth in Lending disclosures per Compliance Manual Section 2.

Table F-1: Loan Origination and Processing Fees

| Fee Type | Amount | When Charged | Refundable | TILA Treatment |
|----------------------|-----------------------|----------------|-------------|--------------------|
| Application Fee | \$500 | At application | No | Include in APR |
| Origination Fee | 0.25% - 1.00% of loan | At closing | No | Finance charge |
| Underwriting Fee | \$750 | At approval | If declined | Include in APR |
| Processing Fee | \$350 | At closing | No | Finance charge |
| Document Preparation | \$250 | At closing | No | Finance charge |
| Wire Transfer Fee | \$25 | At funding | No | Not finance charge |

Table F-2: Third-Party Fees (Pass-Through)

| Service | Typical Cost Range | Paid To | TILA Treatment |
|--------------------------|---------------------|--------------------|---------------------|
| Property Appraisal | \$450 - \$3,500 | Licensed appraiser | Include in APR only |
| Environmental Assessment | \$1,500 - \$15,000 | Environmental firm | Include in APR only |
| Survey | \$500 - \$2,500 | Licensed surveyor | Include in APR only |
| Title Insurance | 0.5% - 1.0% of loan | Title company | Not finance charge |
| Recording Fees | \$50 - \$200 | County recorder | Not finance charge |
| Attorney Review | \$500 - \$2,000 | Bank's attorney | Finance charge |

Important: Third-party fees are estimates only. Actual costs may vary. Per Table 2.2 in the Compliance Manual, only fees paid to the bank or its affiliates are included in the finance charge calculation.

Table F-3: Ongoing Service Fees

| Service | Frequency | Amount | Waiver Conditions |
|------------------------|----------------|--------------------------|----------------------------|
| Annual Review Fee | Annual | \$200 - \$500 | Loans >\$1M waived |
| Modification Fee | Per occurrence | \$250 | Simple rate changes waived |
| Late Payment Fee | Per occurrence | 5% of payment, max \$500 | Grace period: 15 days |
| Insufficient Funds Fee | Per occurrence | \$35 | None |
| Statement Copy Fee | Per request | \$10 | Online statements free |
| Payoff Statement Fee | Per request | \$25 | First request free |

Cross-Reference Matrix

This fee schedule interacts with multiple other policy documents:

| Fee Category | Related Document | Specific Reference |
|------------------|-----------------------|--------------------------------------|
| Origination Fees | Rate Sheet RS-2024-Q2 | Table RS-2 for risk adjustments |
| TILA Compliance | Compliance Manual | Section 2.2, Table 2.2 |
| Authority Limits | Policy Manual | Table 4.1 for fee waiver authority |
| Special Programs | Rate Sheet RS-2024-Q2 | Table RS-4 for program-specific fees |

Note: Fee waivers require appropriate lending authority as defined in Policy Manual Table 4.1. All fee modifications must be documented in the loan file with proper justification.

Document Usage Instructions for RAG Implementation

This knowledge base is designed to test your LangChain RAG system's ability to handle:

1. Table Context Preservation

- Multiple interconnected tables (e.g., Table 3.1 references Table 3.2)
- Complex relationships between table headers and data
- Cross-document table references (Rate Sheet references Policy Manual)

2. Cross-Reference Resolution

- Document-to-document references ("see Table 4.1 in Chapter 4")
- Section-to-section links within documents
- Policy-to-procedure connections across multiple files

3. Regulatory Compliance Context

- Critical compliance information that must be accurate
- Fee calculations that impact legal disclosures
- Risk rating systems with cascading effects

4. Test Queries to Validate Your RAG System

Try these sample queries to test your implementation:

Table Context Queries:

- "What is the maximum LTV for retail centers and what reserves are required?"
- "Show me the pricing for a \$2M commercial real estate loan with a risk rating of 4"
- "What fees should be included in the finance charge calculation?"

Cross-Reference Queries:

- "What documentation is required for Tier 3 market properties?"
- "If a loan has a risk rating of 5, what margin adjustment and monitoring frequency applies?"
- "What authority level is needed to approve a \$750K commercial loan?"

Compliance-Critical Queries:

- "What are the TILA disclosure requirements for a commercial real estate refinance?"
- "Calculate the APR components for a \$500K equipment loan with 1% origination fee"
- "What concentration limits apply to healthcare industry exposure?"

5. Expected RAG Challenges

Your LangChain implementation should address:

- **Chunking Strategy:** Tables split across chunks lose context
- **Semantic Search:** Rate/fee queries need exact numerical matches
- **Cross-Document Linking:** References spanning multiple documents
- **Regulatory Accuracy:** Zero tolerance for errors in rates/fees/compliance

This realistic banking dataset will thoroughly test your RAG system's ability to maintain accuracy and context across complex, interconnected financial documents.

Banking Knowledge Base - Appendix Documents

Document 6: Amortization Tables (amortization_tables.md)

Standard Amortization Schedule Examples

These tables are referenced in Commercial Loan Handbook Table 3.3 and Rate Sheet Table RS-3.

Table A-1: Monthly Payment Factors (Per \$1,000 Financed)

| Interest Rate | 15 Year | 20 Year | 25 Year | 30 Year |
|---------------|---------|---------|---------|---------|
| 5.00% | \$7.91 | \$6.60 | \$5.85 | \$5.37 |
| 5.25% | \$8.04 | \$6.74 | \$5.99 | \$5.52 |
| 5.50% | \$8.17 | \$6.88 | \$6.14 | \$5.68 |

| Interest Rate | 15 Year | 20 Year | 25 Year | 30 Year |
|---------------|---------|---------|---------|---------|
| 5.75% | \$8.30 | \$7.03 | \$6.29 | \$5.84 |
| 6.00% | \$8.44 | \$7.16 | \$6.44 | \$6.00 |
| 6.25% | \$8.57 | \$7.31 | \$6.60 | \$6.16 |
| 6.50% | \$8.71 | \$7.46 | \$6.75 | \$6.32 |
| 6.75% | \$8.85 | \$7.60 | \$6.91 | \$6.49 |
| 7.00% | \$8.99 | \$7.75 | \$7.07 | \$6.65 |
| 7.25% | \$9.13 | \$7.90 | \$7.23 | \$6.82 |
| 7.50% | \$9.27 | \$8.06 | \$7.39 | \$6.99 |
| 8.00% | \$9.56 | \$8.36 | \$7.72 | \$7.34 |
| 8.50% | \$9.85 | \$8.68 | \$8.05 | \$7.69 |
| 9.00% | \$10.14 | \$9.00 | \$8.39 | \$8.05 |
| 9.50% | \$10.44 | \$9.32 | \$8.74 | \$8.41 |
| 10.00% | \$10.75 | \$9.65 | \$9.09 | \$8.78 |

Sample Calculation Example

For a \$1,500,000 commercial real estate loan at 7.25% for 25 years:

- Monthly Payment Factor: \$7.23 per \$1,000
- Monthly Payment: $\$1,500 \times \$7.23 = \$10,845.00$
- Total Interest: $(\$10,845 \times 300 \text{ payments}) - \$1,500,000 = \$1,753,500$

Table A-2: Balloon Payment Calculations

For loans with terms shorter than amortization period:

| Amortization | Loan Term | Remaining Balance % |
|--------------|-----------|---------------------|
| 25 years | 5 years | 91.2% |
| 25 years | 7 years | 86.8% |
| 25 years | 10 years | 79.4% |
| 30 years | 5 years | 94.1% |
| 30 years | 7 years | 90.8% |
| 30 years | 10 years | 85.2% |

Usage Note: These percentages assume no principal prepayments. Actual balloon amounts may vary based on payment history and any principal reductions.

Document 7: Credit Analysis Worksheets (credit_analysis.md)

Commercial Loan Underwriting Worksheets

These worksheets support the risk rating system defined in Policy Manual Table 4.2.

Table CA-1: Cash Flow Analysis Template

| Income Statement Item | Year 1 | Year 2 | Year 3 | Weight Factor | Weighted Average |
|---|------------|------------|------------|---------------|------------------|
| Gross Revenue | \$_____ | \$_____ | \$_____ | 40% | \$_____ |
| Operating Expenses | \$ (_____) | \$ (_____) | \$ (_____) | 40% | \$ (_____) |
| Net Operating Income | \$_____ | \$_____ | \$_____ | 40% | \$_____ |
| Depreciation | \$ (_____) | \$ (_____) | \$ (_____) | 20% | \$ (_____) |
| Interest Expense | \$ (_____) | \$ (_____) | \$ (_____) | 40% | \$ (_____) |
| Net Income Before Tax | \$_____ | \$_____ | \$_____ | N/A | \$_____ |
| Tax Expense | \$ (_____) | \$ (_____) | \$ (_____) | 30% | \$ (_____) |
| Net Income After Tax | \$_____ | \$_____ | \$_____ | N/A | \$_____ |
| Add Back: Depreciation | \$_____ | \$_____ | \$_____ | N/A | \$_____ |
| Cash Flow Available for Debt Service | \$_____ | \$_____ | \$_____ | N/A | \$_____ |

Table CA-2: Debt Service Coverage Ratio Analysis

| Calculation Component | Amount | Notes |
|------------------------------------|------------|------------------------------|
| Net Operating Income (from CA-1) | \$_____ | Use weighted average |
| Less: Capital Reserves | \$ (_____) | See Table 3.1 requirements |
| Less: Replacement Reserves | \$ (_____) | 2-5% of gross revenue |
| Adjusted Cash Flow | \$_____ | |
| Proposed Annual Debt Service | \$_____ | P&I payments only |
| Debt Service Coverage Ratio | _____ x | Must meet Table 3.1 minimums |

Table CA-3: Global Cash Flow Analysis (Guarantor)

| Personal/Business Income Source | Annual Amount | Reliability Factor | Weighted Income |
|---------------------------------|---------------|--------------------|-----------------|
| Salary/Wages (W-2) | \$_____ | 100% | \$_____ |
| Business Income (K-1/1099) | \$_____ | 75% | \$_____ |
| Rental Income (Schedule E) | \$_____ | 75% | \$_____ |
| Investment Income | \$_____ | 50% | \$_____ |
| Other Income | \$_____ | ____% | \$_____ |
| Total Weighted Income | | | \$_____ |
| Less: Personal Living Expenses | \$ (_____) | | |

| Personal/Business Income Source | Annual Amount | Reliability Factor | Weighted Income |
|--|---------------|--------------------|-----------------|
| Less: Personal Debt Service | \$ (____) | | |
| Less: Guarantor Tax Liability | \$ (____) | | |
| Available Cash Flow for Support | \$ ____ | | |

Cross-Reference: Income reliability factors based on Underwriting Standards Manual Section 3.4.

Document 8: Exception Processing Guidelines (exceptions.md)

Loan Exception and Override Procedures

This document governs exceptions to standard lending criteria outlined in Policy Manual Section 4.

Table EX-1: Standard Exception Categories

| Exception Type | Approval Authority | Documentation Required | Maximum Override |
|-----------------------|--------------------|-----------------------------------|--------------------------|
| LTV Excess | VP Level | Market study + enhanced appraisal | 5% above standard |
| DSCR Deficiency | SVP Level | 5-year projections + CPA review | 0.10x below minimum |
| Credit Score Override | AVP Level | Compensating factors memo | 50 points below standard |
| Income Documentation | VP Level | Alternative verification | Non-QM guidelines |
| Concentration Limit | Board Level | Risk assessment + monitoring plan | 10% above limit |
| Authority Excess | Next Level Up | Detailed credit analysis | No limit |

Table EX-2: Exception Pricing Matrix

Standard rate adjustments for approved exceptions:

| Exception Severity | Rate Adjustment | Fee Addition | Enhanced Terms |
|---------------------------------|-----------------|--------------------|---------------------|
| Minor (within 10% of guideline) | +0.25% | +0.25% origination | Quarterly reporting |
| Moderate (10-25% variance) | +0.50% | +0.50% origination | Monthly reporting |
| Significant (25%+ variance) | +1.00% | +1.00% origination | Weekly reporting |

Table EX-3: Documentation Requirements Matrix

| Exception Category | Required Documentation | Review Timeline | File Retention |
|--------------------------|---|------------------|----------------|
| Credit Exceptions | | | |
| Credit Score Override | Credit explanation letter, compensating factors | 5 business days | Permanent |
| Bankruptcy History | BK documents, re-establishment evidence | 10 business days | 10 years |

| Exception Category | Required Documentation | Review Timeline | File Retention |
|------------------------------|--|------------------|----------------|
| Income Exceptions | | | |
| Self-Employed Income | 3 years tax returns, CPA letter | 7 business days | 7 years |
| Non-Traditional Income | Bank statements, contracts | 5 business days | 7 years |
| Collateral Exceptions | | | |
| LTV Override | Enhanced appraisal, market study | 15 business days | Permanent |
| Non-Standard Property | Specialized appraisal, feasibility study | 20 business days | Permanent |

Cross-Reference Note: All exception approvals must comply with authority limits in Policy Manual Table 4.1. Pricing adjustments are in addition to base rates in Rate Sheet Table RS-1.

Document 9: Training and Certification Matrix (training.md)

Lending Staff Training Requirements

All lending personnel must maintain current certifications as outlined in HR Policy 3.7.

Table TR-1: Required Training by Position

| Position Level | Core Banking | Lending Fundamentals | Regulatory Updates | BSA/AML | Fair Lending |
|----------------------------|--------------|----------------------|--------------------|---------------|---------------|
| Loan Officer I | 40 hours | 60 hours | 8 hours/year | 4 hours/year | 6 hours/year |
| Loan Officer II | Current | 80 hours | 8 hours/year | 4 hours/year | 8 hours/year |
| Senior Loan Officer | Current | Current | 12 hours/year | 6 hours/year | 10 hours/year |
| Assistant VP | Current | Current | 16 hours/year | 8 hours/year | 12 hours/year |
| VP and Above | Current | Current | 20 hours/year | 12 hours/year | 16 hours/year |

Table TR-2: Specialized Certification Requirements

| Certification | Required For | Renewal Period | Training Hours | External Cost |
|--------------------------------|-------------------------------------|----------------|----------------|---------------|
| Commercial Lending Certificate | All officers handling >\$250K loans | 3 years | 45 hours | \$2,500 |
| SBA Preferred Lender | SBA loan officers | 2 years | 30 hours | \$1,800 |
| CRE Specialization | Officers handling >\$1M CRE | 4 years | 60 hours | \$3,200 |
| Construction Lending | Construction loan officers | 3 years | 40 hours | \$2,200 |
| Credit Analysis Advanced | Senior officers and above | 5 years | 50 hours | \$2,800 |

Table TR-3: Compliance Training Schedule (2024)

| Quarter | Topic | Required Audience | Hours | Delivery Method |
|---------|-------------------------|----------------------------|-------|--------------------|
| Q1 | TILA/RESPA Updates | All lending staff | 4 | Online + webinar |
| Q2 | Fair Lending Practices | All lending staff | 6 | In-person workshop |
| Q3 | Commercial Loan Review | Officers \$500K+ authority | 8 | Case study session |
| Q4 | Risk Rating Calibration | Senior officers + | 4 | Committee review |

Important: Training completion is tracked in the HR system and impacts performance reviews and authority level assignments per Policy Manual Table 4.1.

Cross-Reference Links

- **Authority Assignments:** See Policy Manual Table 4.1 for training prerequisites
- **Regulatory Requirements:** Compliance Manual Section 1.3 details mandatory training
- **Performance Reviews:** HR Policy 3.7 links training to advancement eligibility
- **Budget Planning:** Training costs included in Department Budget Plan DB-2024-002

Document 10: Historical Rate Archive (rate_history.md)

Historical Interest Rate Data

Archived rate information for trend analysis and pricing decisions.

Table RH-1: Prime Rate History (Last 24 Months)

| Effective Date | Prime Rate | Fed Funds Rate | 10-Year Treasury | Bank Prime Spread |
|----------------|------------|----------------|------------------|-------------------|
| 2024-06-01 | 8.50% | 5.25% - 5.50% | 4.41% | 3.09% |
| 2024-03-15 | 8.50% | 5.25% - 5.50% | 4.28% | 3.22% |
| 2024-01-01 | 8.50% | 5.25% - 5.50% | 4.02% | 3.48% |
| 2023-12-01 | 8.50% | 5.25% - 5.50% | 4.15% | 3.35% |
| 2023-09-20 | 8.50% | 5.25% - 5.50% | 4.68% | 2.82% |
| 2023-07-26 | 8.25% | 5.00% - 5.25% | 4.82% | 2.43% |
| 2023-05-03 | 8.00% | 4.75% - 5.00% | 3.44% | 3.56% |
| 2023-03-22 | 7.75% | 4.50% - 4.75% | 3.68% | 3.07% |
| 2023-02-01 | 7.50% | 4.25% - 4.50% | 3.52% | 2.98% |
| 2022-12-14 | 7.25% | 4.00% - 4.25% | 3.88% | 2.37% |

Table RH-2: Commercial Loan Rate Trends by Product

Average rates charged over the past 12 months:

| Product Category | Q2 2024 | Q1 2024 | Q4 2023 | Q3 2023 | Trend |
|--------------------|---------|---------|---------|---------|------------------|
| CRE Owner-Occupied | 9.25% | 9.18% | 9.35% | 9.12% | Stable |
| CRE Investment | 9.75% | 9.68% | 9.85% | 9.52% | Slight increase |
| Commercial LOC | 9.00% | 8.95% | 9.10% | 8.85% | Gradual rise |
| Equipment Finance | 8.75% | 8.70% | 8.85% | 8.60% | Modest increase |
| SBA 7(a) Loans | 11.25% | 11.25% | 11.25% | 11.00% | Stable/slight up |
| Construction | 10.25% | 10.15% | 10.40% | 9.95% | Variable |

Table RH-3: Competitive Rate Analysis

Comparison with regional competitors (Q2 2024):

| Institution | CRE Owner-Occ | CRE Investment | Comm LOC | Market Position |
|---------------------|---------------|----------------|----------|---------------------|
| Our Bank | 9.25% | 9.75% | 9.00% | Market rate |
| Community Bank A | 9.15% | 9.65% | 8.85% | Slightly aggressive |
| Regional Bank B | 9.40% | 9.95% | 9.25% | Conservative |
| Credit Union C | 8.95% | 9.45% | 8.75% | Very aggressive |
| Large National Bank | 9.60% | 10.10% | 9.45% | Premium pricing |

Cross-Reference: Rate positioning strategy detailed in Strategic Plan SP-2024, Section 4.2.

Document 11: Workout and Special Assets (workout.md)

Problem Loan Management Procedures

Guidelines for managing loans migrating from Policy Manual risk ratings 5-8.

Table WO-1: Workout Strategy Matrix

| Current Risk Rating | Workout Strategy | Timeline | Success Metrics |
|---------------------|--|--------------|------------------------------|
| 5 - Special Mention | Enhanced monitoring, payment restructure | 6-12 months | Return to rating 4 or better |
| 6 - Substandard | Formal workout plan, collateral review | 12-18 months | Cure deficiencies or upgrade |
| 7 - Doubtful | Collection efforts, liquidation planning | 6-12 months | Maximize recovery |
| 8 - Loss | Immediate charge-off or collection | 30-90 days | Minimize additional loss |

Table WO-2: Restructure Options by Loan Type

| Loan Product | Available Modifications | Approval Authority | Maximum Extension |
|-------------------------------|-------------------------|--------------------|-------------------|
| Commercial Real Estate | | | |

| Loan Product | Available Modifications | Approval Authority | Maximum Extension |
|------------------------|-------------------------|-------------------------|-------------------|
| Rate reduction | VP + Credit Committee | 2% below market | 24 months |
| Term extension | SVP + Credit Committee | Original term + 50% | 60 months |
| Principal deferral | Board approval | Up to 12 months P&I | 12 months |
| Equipment Loans | | | |
| Payment reduction | VP approval | 50% of original payment | 18 months |
| Balloon restructure | Credit Committee | Extend to useful life | 36 months |
| Lines of Credit | | | |
| Interest-only period | AVP approval | 6 months maximum | 6 months |
| Term-out option | VP + Credit Committee | 5 years maximum | 60 months |

Table WO-3: Collateral Liquidation Timeline

| Asset Type | Marketing Period | Expected Recovery | Liquidation Costs |
|-------------------------|------------------|---------------------------|--------------------------|
| Real Estate | | | |
| Office buildings | 12-18 months | 70-85% of appraised value | 8-12% of gross proceeds |
| Retail properties | 18-24 months | 60-75% of appraised value | 10-15% of gross proceeds |
| Industrial | 9-15 months | 75-90% of appraised value | 6-10% of gross proceeds |
| Equipment | | | |
| Construction equipment | 3-6 months | 40-60% of book value | 15-25% of gross proceeds |
| Manufacturing equipment | 6-12 months | 30-50% of book value | 20-30% of gross proceeds |
| Vehicles/trucks | 2-4 months | 50-70% of book value | 10-15% of gross proceeds |

Important: All liquidation estimates assume orderly sale process. Forced liquidation may result in significantly lower recoveries.

Cross-Reference Matrix

| Workout Decision | Related Policy | Specific Reference |
|------------------------|-------------------|------------------------------|
| Risk rating changes | Policy Manual | Table 4.2 definitions |
| Authority requirements | Policy Manual | Table 4.1 approval limits |
| Reserve calculations | Regulatory Manual | Section 3.4 methodology |
| Tax implications | Accounting Manual | Section 7.2 charge-off rules |

Additional Test Files for RAG Implementation

File Structure Recommendation:

```

banking_knowledge_base/
├── documents/
│   ├── loan_handbook.md
│   └── compliance_manual.md

```

```

|   |— policy_manual.md
|   |— rate_sheet.md
|   |— fee_schedule.md
|   |— amortization_tables.md
|   |— credit_analysis.md
|   |— exceptions.md
|   |— training.md
|   |— rate_history.md
|   |— workout.md
|— processed_data/
|   |— embeddings/
|   |— chunks/
|— test_queries/
|   |— table_context_tests.json
|   |— cross_reference_tests.json
|   |— compliance_tests.json

```

Complex Test Scenarios for Your RAG System:

1. Multi-Table Reasoning

Query: "For a \$3M retail center loan with a risk rating of 4 in a Tier 2 market, what would be the total monthly payment including reserves?"

Expected RAG Process:

- Reference Table 3.1 for retail center LTV (70%) and reserves (8 months)
- Check Table 3.2 for Tier 2 adjustments (-5% LTV, +0.25% rate)
- Apply Table RS-2 risk rating adjustment (+0.50% margin)
- Use Table A-1 for payment calculation
- Combine multiple table results accurately

2. Cross-Document Compliance

Query: "What documentation and approvals are needed for a construction loan exception that exceeds our concentration limit?"

Expected RAG Process:

- Find concentration limits in Policy Manual Table 4.3
- Reference exception procedures in Table EX-1
- Check approval authority in Policy Manual Table 4.1
- Verify documentation requirements from Table EX-3
- Ensure regulatory compliance per Compliance Manual

3. Historical Context Analysis

Query: *"How has our commercial real estate pricing compared to competitors, and what authority level can approve rate matching?"*

Expected RAG Process:

- Extract rate trends from Table RH-2
- Compare with competitive analysis Table RH-3
- Determine pricing authority from Policy Manual Table 4.1
- Consider exception processing from Table EX-1
- Reference rate sheet margins from Table RS-1

This comprehensive banking knowledge base provides the perfect testing ground for your LangChain RAG implementation, with realistic complexity that mirrors actual financial institution documentation challenges.