

Connected Corridors Grant Matcher - Grants.gov

Integration

Overview

The Connected Corridors Grant Matcher is a comprehensive grant funding discovery system that combines expert-curated recommendations with live Grants.gov API data, specifically tailored for connected corridors and intelligent transportation system (ITS) projects.

Features

1. 🗺️ Connected Corridors Strategy Matcher

Analyzes your project against connected corridors strategy priorities:

- **Strategy Alignment Scoring** - Measures how well your project aligns with connected corridors initiatives
- **Smart Recommendations** - AI-powered suggestions for strengthening your application
- **Focus Area Analysis** - Identifies key areas: V2X, Connected Vehicles, Traffic Management, Multi-State Coordination, Data Sharing

Strategic Priorities:

- V2X Infrastructure Deployment
- Connected Vehicle Systems Integration
- Real-time Traffic Management
- Multi-State/Regional Coordination
- Data Sharing & Interoperability Standards

2. 🔴 Live Grants.gov Integration

Real-time access to current federal funding opportunities:

- **Live NOFO Search** - Direct integration with Grants.gov API (no authentication required)
- **Auto-Matching** - Automatically scores opportunities against your project description
- **Direct Links** - One-click access to Grants.gov application pages
- **Status Tracking** - See which grants are open, forecasted, or closing soon


API Endpoints:

- `/api/grants/search-live` - Search current opportunities
- `/api/grants/opportunity/:id` - Fetch detailed NOFO information
- `/api/grants/connected-corridors-match` - Smart matcher combining curated + live data

3. 🕒 Deadline Monitoring

Proactive deadline tracking and alerts:

- **60-Day Forecast** - Monitor all upcoming deadlines
- **Critical Alerts** - Highlights grants closing within 14 days
- **Priority Levels:**
 - 🚨 **CRITICAL:** 0-14 days until close
 - ⚠️ **HIGH:** 15-30 days until close

- o  **MEDIUM:** 31-60 days until close

API Endpoint:

- `/api/grants/monitor-deadlines` - Real-time deadline monitoring

4. Curated Grant Recommendations

Expert-selected grants with ITS/connected corridors focus:

Competitive Grants:

- **SMART Grant** - Connected vehicles, V2X, automation
- **ATCMTD** - Traffic management, signal optimization, V2I
- **RAISE** - Multimodal, safety, sustainability
- **INFRA** - Freight corridors, major infrastructure
- **PROTECT** - Resilience, emergency management
- **FMCSA IT-D** - Commercial vehicle data, truck parking

Block Grants:

- **HSIP** - Highway Safety Improvement Program
- **CMAQ** - Congestion Mitigation and Air Quality
- **STBG** - Surface Transportation Block Grant
- **TAP** - Transportation Alternatives
- **FTA 5339** - Bus and Bus Facilities

Usage

Step 1: Describe Your Project

Navigate to **Grant Applications** → **Connected Corridors Matcher** tab:

Project Description: "Deploy V2X infrastructure and connected vehicle systems along I-80 corridor with multi-state coordination between Iowa, Nebraska, and Illinois"

Primary Corridor: I-80

Requested Amount: \$8,500,000

Geographic Scope: Multi-State

Step 2: Get Smart Matches

Click "**Find Matching Grants**" to receive:

1. Strategy Alignment Score (0-100%)

- o Based on connected corridors priorities
- o V2X deployment potential
- o Multi-state coordination
- o ITS infrastructure readiness

2. Strategic Recommendations

- o Priority-ranked action items
- o Specific grant program alignments

- Data sharing requirements
- Partnership opportunities

3. Top Grant Matches

- Expert-curated programs (SMART, ATCMTD, etc.)
- Live Grants.gov opportunities
- Block grant options

Step 3: Monitor Live Opportunities

Switch to "Live Opportunities" tab:

- Real-time search of Grants.gov
- Filtered for transportation/ITS keywords
- Sorted by match score
- Direct application links

Step 4: Track Deadlines

Switch to "Deadline Alerts" tab:

- See all upcoming deadlines (60-day window)
- Critical alerts highlighted at top
- Auto-refreshes to show latest data
- Direct links to apply

API Integration Details

Backend Endpoints

Search Live Grants

```
POST /api/grants/search-live
{
  "keyword": "intelligent transportation systems",
  "fundingAgency": "DOT",
  "status": "forecasted,posted",
  "eligibility": "State governments"
}
```

Response:

```
{
  "success": true,
  "opportunities": [
    {
      "opportunityId": "12345",
      "title": "FY2025 SMART Grant Program",
      "agency": "USDOT",
      "closeDate": "2025-06-30",
      "daysUntilClose": 45,
      "closingSoon": false,
      "awardCeiling": 15000000,
    }
  ]
}
```

```
    "status": "posted",
    "grantsGovLink": "https://www.grants.gov/search-results-detail/12345"
  },
  "totalResults": 12,
  "fetchAt": "2025-12-27T10:30:00Z"
}
```

Connected Corridors Match

```
POST /api/grants/connected-corridors-match
{
  "description": "V2X deployment along I-80",
  "primaryCorridor": "I-80",
  "requestedAmount": 8500000,
  "geographicScope": "multi-state",
  "stateKey": "IA"
}
```

Response:

```
{
  "success": true,
  "curatedGrants": [...],
  "liveOpportunities": [...],
  "blockGrants": [...],
  "connectedCorridorsStrategy": {
    "alignmentScore": 85,
    "recommendations": [
      {
        "area": "V2X Infrastructure",
        "priority": "HIGH",
        "suggestion": "SMART and ATCMTD grants prioritize V2X deployment..."
      }
    ]
  },
  "keyFocusAreas": [
    "V2X Infrastructure Deployment",
    "Connected Vehicle Systems",
    "Real-time Traffic Management",
    "Multi-State Coordination",
    "Data Sharing & Interoperability"
  ],
  "context": {
    "hasITSEquipment": true,
    "hasV2XGaps": true,
    "hasTruckParkingData": true,
    "isFreightCorridor": true
  }
}
```

Monitor Deadlines

```
GET /api/grants/monitor-deadlines?stateKey=IA&daysAhead=60
```

Response:

```
{
  "success": true,
  "deadlineAlerts": {
    "critical": [
      {
        "opportunityId": "67890",
        "title": "RAISE Grant FY2025",
        "agency": "USDOT",
        "closeDate": "2025-01-30",
        "daysUntilClose": 3,
        "urgency": "CRITICAL",
        "grantsGovLink": "https://www.grants.gov/..."
      }
    ],
    "high": [...],
    "medium": [...],
    "total": 8
  },
  "monitoredDays": 60
}
```

Matching Algorithm

Connected Corridors Match Score

The system calculates a 0-100% match score based on:

Technology Deployment (25 points)

- Keywords: connected, V2X, ITS, smart, automated
- Presence of existing ITS infrastructure

Corridor Focus (20 points)

- Keywords: corridor, interstate, highway, I-XX
- Freight corridor identification

Regional Coordination (20 points)

- Multi-state projects
- Regional partnerships
- Interstate collaboration

V2X Infrastructure (20 points)

- V2X deployment potential
- RSU gaps identified

- Connected vehicle systems

Data Sharing (15 points)

- Interoperability plans
- Data sharing agreements
- Standards compliance

Live Opportunity Match Score

For Grants.gov opportunities:

Connected Corridors Keywords (15 pts each)

- Connected vehicles
- Intelligent transportation
- V2X / V2I
- Smart corridors
- ITS deployment

Technology Focus (20 points)

- ITS, smart, automated, connected

V2X Specific (25 points)

- V2X, V2I, connected vehicle, vehicle-infrastructure

Corridor/Infrastructure (15 points)

- Corridor, highway, interstate, infrastructure

Funding Alignment (10 points)

- Award range matches request

Status Bonus (15 points)

- Currently accepting applications

Benefits

For State DOTs

1. Time Savings

- No manual Grants.gov searches
- Auto-filtered for relevance
- Direct application links

2. Strategic Alignment

- Ensures projects fit connected corridors strategy
- Identifies gaps and opportunities
- Prioritizes high-value grants

3. Never Miss Deadlines

- Proactive monitoring
- Critical alerts for urgent applications

- 60-day planning window

4. Data-Driven Decisions

- Uses actual ITS inventory
- Incorporates corridor data
- Leverages existing infrastructure

For Grant Writers

1. Smart Recommendations

- Explains why grants match
- Highlights key requirements
- Shows typical award ranges

2. Live Status

- Real-time NOFO availability
- Current deadlines
- Award amounts

3. Multi-Source

- Expert-curated programs
- Live Grants.gov data
- Block grant options

Testing

Test Live Search

```
curl -X POST http://localhost:3001/api/grants/search-live \
-H "Content-Type: application/json" \
-d '{
  "keyword": "intelligent transportation systems",
  "fundingAgency": "DOT",
  "status": "posted"
}'
```

Test Connected Corridors Match

```
curl -X POST http://localhost:3001/api/grants/connected-corridors-match \
-H "Content-Type: application/json" \
-d '{
  "description": "Deploy V2X RSUs and connected vehicle systems along I-35
corridor",
  "primaryCorridor": "I-35",
  "requestedAmount": 8000000,
  "geographicScope": "multi-state",
  "stateKey": "IA"
}'
```

Test Deadline Monitoring

```
curl http://localhost:3001/api/grants/monitor-deadlines?daysAhead=60
```

Technical Architecture

Frontend Components

ConnectedCorridorsGrantMatcher.jsx

- Main component with 3 tabs
- Smart Matcher view
- Live Opportunities view
- Deadline Alerts view
- Real-time API integration
- Responsive design with dark mode

Integration Points

- Added to GrantApplications.jsx as new tab
- Shares user context and state
- Uses existing api service layer

Backend Infrastructure

New Endpoints (backend_proxy_server.js)

- /api/grants/search-live - Grants.gov search
- /api/grants/opportunity/:id - Opportunity details
- /api/grants/connected-corridors-match - Smart matcher
- /api/grants/monitor-deadlines - Deadline tracking

Enhanced Recommender (utils/grant-recommender.js)

- Existing scoring algorithms
- Extended with V2X focus
- Truck parking data integration
- Freight corridor detection

Grants.gov API

Base URL: `https://api.grants.gov/v1/api`

Endpoints Used:

- `POST /search2` - Search opportunities
- `POST /fetchOpportunity` - Get opportunity details

Authentication: None required for these endpoints

Rate Limits: Not specified by Grants.gov API

Future Enhancements

Planned Features

1. Email Alerts

- Daily/weekly deadline digests
- New opportunity notifications
- Custom keyword alerts

2. Saved Searches

- Save project criteria
- Auto-run searches weekly
- Compare changes over time

3. Application Tracking

- Link matched grants to applications
- Track submission status
- Award notifications

4. Enhanced Scoring

- Machine learning for match quality
- Historical award data
- Success rate predictions

5. Collaboration Features

- Share opportunities with team
- Multi-state project coordination
- Partner matching

6. Analytics Dashboard

- Funding trends over time
- Success rates by program
- Budget allocation insights

Support

For issues or questions:

- Check the API logs for Grants.gov connectivity
- Verify project description includes connected corridors keywords
- Ensure state context is available (user.stateKey)
- Test endpoints directly with curl/Postman

References

- [Grants.gov API Guide](#)
- [USDOT SMART Grant Program](#)
- [Connected Corridors Coalition](#)
- [ARC-IT 10.0 Standards](#)