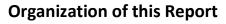# District Review Report

Ludlow Public Schools

Review conducted October 26–29, 2015

Center for District and School Accountability

Massachusetts Department of Elementary and Secondary Education

Organization of this Report

This document was prepared by the
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Executive Summary

Strengths

In his four years of leadership the superintendent has brought a significant easing of tensions to the district. He replaced a superintendent whose tenure was marked by controversy. Stakeholders from teachers to school committee members repeatedly remarked on the positive atmosphere in place since his arrival. Town officials concurred with this assessment; they have found his openness and willingness to collaborate with the town a refreshing change.

District administrators, following the superintendent's lead, have created inclusive processes for the development of curriculum that have led to extensive teacher participation and have resulted in significant buy-in. During the same period, teachers, pleased with the respect afforded them by the superintendent, have shown a willingness to take on the leadership roles increasingly available to them in the district.

Challenges and Areas of Growth

Ludlow is a Level 3 district because Veterans Park Elementary is in Level 3 for being among the lowest performing 20 percent of elementary schools in the state. From 2012 to 2015 the overall percentage of students scoring proficient or higher on ELA MCAS tests did not improve but has remained stable; the percentage of students scoring proficient or higher on math and science MCAS tests improved by 3 and by 14 percentage points, respectively. In 2015 ELA proficiency rates were below the state rate in each tested grade but one; math proficiency rates were below the state rate in three tested grades; and science proficiency rates were below the state rate in each tested grade.

District leaders have missed the opportunity to centrally plan the implementation of activities that would lead to continuous improvement. District and school planning documents are brief and do not include essential components such as benchmarks, resources, and timelines. School Improvement Plans are not built around the goals of the District Improvement Plan and some address different periods of time.

During the onsite review teachers generally did not have a common understanding of what good instruction looks like in Ludlow. And review team members found little consistency in the quality of the instruction observed. In observed classrooms differentiation of instruction was particularly underdeveloped. The district was beginning to address issues with vertical alignment of the implemented curriculum.

The district relies more on teacher-developed assessments such as the district writing prompts and the District Math Assessments than on standardized assessments such as the MCAS to establish what its students know. Teachers have had the freedom to adjust local assessments as they see the need. This has resulted in varying assessments that the district could not collect and analyze at the school and district levels. This has also meant that schools and the district as a whole do not have full

understanding of how students are doing academically and what educators need to improve their learning.

Similarly, the district does not have a district professional development plan or a professional development committee. District administrators and school principals decide the content of the professional development. Without the use of assessment, educator evaluations, and survey results, the professional development may not address students' instructional needs. Also, perceived or actual contractual language is in some cases causing uncertainty and confusion for principals and preventing them from managing their resources effectively and strategically.

In the development of the annual budget, principals have the opportunity to communicate their budgetary needs, but district business administrators agreed that they do not consider District and School Improvement Plans in developing the budget. Also, budget documents are not complete or broadly available for review by stakeholders.

Ludlow Public Schools District Review Overview

Purpose

Conducted under Chapter 15, Section 55A of the Massachusetts General Laws, district reviews support local school districts in establishing or strengthening a cycle of continuous improvement. Reviews consider carefully the effectiveness of systemwide functions, with reference to the six district standards used by the Department of Elementary and Secondary Education (ESE): leadership and governance, curriculum and instruction, assessment, human resources and professional development, student support, and financial and asset management. Reviews identify systems and practices that may be impeding improvement as well as those most likely to be contributing to positive results.

Districts reviewed in the 2015-2016 school year include districts classified into Level 2, Level 3, or Level 4 of ESE's framework for district accountability and assistance. Review reports may be used by ESE and the district to establish priority for assistance and make resource allocation decisions.

Methodology

Reviews collect evidence for each of the six district standards above. A district review team consisting of independent consultants with expertise in each of the district standards reviews documentation, data, and reports for two days before conducting a four-day district visit that includes visits to individual schools. The team conducts interviews and focus group sessions with such stakeholders as school committee members, teachers' association representatives, administrators, teachers, parents, and students. Team members also observe classroom instructional practice. Subsequent to the onsite review, the team meets for two days to develop findings and recommendations before submitting a draft report to ESE.

Site Visit

The site visit to the Ludlow schools was conducted from October 26–October 29, 2015. The site visit included 31 hours of interviews and focus groups with approximately 158 stakeholders, including school committee members, district administrators, school staff, and teachers' association representatives. The review team conducted 3 focus groups with 27 elementary-school teachers, 21 middle-school teachers, and 49 high-school teachers.

A list of review team members, information about review activities, and the site visit schedule are in Appendix A, and Appendix B provides information about enrollment, student performance, and expenditures. The team observed classroom instructional practice in 66 classrooms in 5 schools. The team collected data using an instructional inventory, a tool for recording observed characteristics of standards-based teaching. This data is contained in Appendix C.

District Profile

Ludlow has a town manager form of government and the chair of the school committee is elected. The five members of the school committee meet every two weeks, or less frequently as appropriate.

The current superintendent has been in the position since July 2012. The district leadership team includes the superintendent, the curriculum director, the special education director, and five principals. Central office positions have been mostly stable in number over the past several years. The district has five principals leading five schools. There are other school administrators, including assistant principals and an athletic director. There are 232 teachers in the district.

In the 2014–2015 school year, 2,716 students were enrolled in the district's 5 schools:

Table 1: Ludlow School District
Schools, Type, Grades Served, and Enrollment*, 2014–2015

School Name	School Type	Grades Served	Enrollment
East Street	EES	PK–1	409
Chapin Street	ES	2–3	342
Veterans Park	ES	4–5	417
Baird Middle	MS	6–8	650
Ludlow Senior High	HS	9–12	898
Totals	**5 schools**	**PK-12**	**2,716**
*As of October 1, 2014			

Between 2011 and 2015 overall student enrollment decreased by 9.1 percent. Enrollment figures by race/ethnicity and high needs populations (i.e., students with disabilities, economically disadvantaged students, and English language learners (ELLs) and former ELLs) as compared with the state are provided in Tables B1a and B1b in Appendix B.

Total in-district per-pupil expenditures were slightly lower than the median in-district per pupil expenditures for 46 K-12 districts of similar size (2,000–2,999 students) in fiscal year 2014: $12,702 as compared with $12,747 (see District Analysis and Review Tool Detail: Staffing & Finance.) Actual net school spending has been above what is required by the Chapter 70 state education aid program, as shown in Table B8 in Appendix B.

Student Performance

District and Subgroup Results

Ludlow is a Level 3 district because Veterans Park Elementary is in the 17th percentile of elementary schools and is in Level 3 in for being among the lowest performing 20 percent of elementary schools.
- Ludlow Senior High is in Level 2 because of low MCAS participation (less than 95%) for students with disabilities, economically disadvantaged students and high needs students.

Table 2: Ludlow Public Schools
District and School PPI, Percentile, and Level 2012–2015

School	Group	Annual PPI				Cumulative PPI	School Percentile	Accountability Level
		2012	2013	2014	2015			
EES: East Street Elementary	All	--	--	--	--	--	--	--
	High Needs	--	--	--	--	--		
ES: Chapin Street Elementary	All	75	125	75	13	60	--	2
	High Needs	88	88	13	25	40		
ES: Veterans Park Elementary	All	30	95	30	60	55	17	3
	High Needs	85	65	50	50	57		
MS: Paul R Baird Middle	All	55	50	55	60	56	34	2
	High Needs	120	20	55	55	55		
HS: Ludlow Senior High	All	68	96	82	61	75	53	2
	High Needs	107	96	93	93	95		
District	All	57	68	46	61	57	--	3
	High Needs	107	43	50	50	54		

Between 2012 and 2015 the percentage of students scoring proficient or advanced in ELA in the district did not improve for all students, high needs students, and students with disabilities. In 2014 the district as a whole and each subgroup that makes up the high needs population were below the state rate.

Table 3: Ludlow Public Schools
ELA Proficiency by Subgroup 2012–2015

Group		2012	2013	2014	2015	4-Year Trend	Above/Below State 2014
All students	District	67%	66%	66%	66%	-1.0	-3.0
	State	69%	69%	69%	--	--	
High Needs	District	57%	49%	48%	46%	-11.0	-2.0
	State	48%	49%	50%	--	--	
Economically Disadvantaged	District	--	--	--	56.0%	--	--
	State	--	--	--	--	--	
ELL and former ELL students	District	9%	27%	35%	20%	11.0	-1.0
	State	34%	34%	36%	--	--	
Students with disabilities	District	26%	23%	24%	25%	-1.0	-6.0
	State	31%	29%	30%	--	--	

Between 2013 and 2015 the percentage of students scoring proficient or advanced in math increased for the district as a whole and for ELL and former ELL students and declined for high needs students and students with disabilities. In 2014 math proficiency rates were also below the state rate for all students and each subgroup that makes up the high needs population by 2 to 6 percentage points.

Table 4: Ludlow Public Schools
Math Proficiency by Subgroup 2012–2015

Group		2012	2013	2014	2015	4-Year Trend	Above/Below State 2014
All students	District	57%	59%	56%	60%	3.0	-4.0
	State	59%	61%	60%	--	--	
High Needs	District	47%	40%	38%	40%	-7.0	-2.0
	State	37%	40%	40%	--	--	
Economically Disadvantaged	District	--	--	--	49%	--	--
	State	--	--	--	--	--	
ELL and former ELL students	District	16%	27%	29%	31%	15	-6.0
	State	32%	35%	35%	--	--	
Students with disabilities	District	18%	15%	18%	14%	-4.0	-5.0
	State	21%	23%	23%	--	--	

Between 2012 and 2015 the percentage of students scoring proficient or advanced in science increased by 15 percentage points for the district as a whole and by 3 percentage points for high needs students.

Table 5: Ludlow Public Schools
Science Proficiency by Subgroup 2012–2015

Group		2012	2013	2014	2015	4-Year Trend	Above/Below State 2015
All students	District	37%	47%	51%	52%	15	-2
	State	54%	53%	55%	54%	0	
High Needs	District	29%	30%	38%	32%	3	1
	State	31%	32%	33%	31%	0	
Economically Disadvantaged	District	--	--	--	39%	--	5
	State	--	--	--	34%	--	
ELL and former ELL students	District	--	--	25%	23%	--	4
	State	17%	19%	18%	19%	2	
Students with disabilities	District	14%	13%	18%	14%	0	-8
	State	20%	21%	21%	22%	2	

The district did not reach its 2015 Composite Performance Index (CPI) targets for all students in ELA, math, and science. The district also did not meet its CPI targets in ELA, math, and science for any of the subgroups with reportable data that make up the high needs population.

Table 6: Ludlow Public Schools
2015 CPI and Targets by Subgroup

Group	ELA			Math			Science		
	2015 CPI	2015 Target	Rating	2015 CPI	2015 Target	Rating	2015 CPI	2015 Target	Rating
All students	85.1	90.0	No Change	79.8	86.9	Improved Below Target	78.2	82.3	No Change
High Needs	74.6	81.5	No Change	66.1	77.1	No Change	65.5	71.6	Declined
Economically Disadvantaged[1]	80.3	--	--	73.8	--	--	71.2	--	--
ELLs	51.8	67.9	Declined	56.0	67.9	Declined	--	--	--
Students with disabilities	61.6	72.1	Improved Below Target	46.4	67.9	Declined	52.0	73.0	Declined

Students' growth in ELA compared with their academic peers was moderate for all students and low for high needs students, economically disadvantaged students, English language learners, and students with disabilities. In math students' growth was moderate compared with their academic peers for all students, high needs students, and economically disadvantaged students and low compared with English language learners and students with disabilities.

Table 7: Ludlow Public Schools
2015 Median ELA and Math SGP by Subgroup

Group	Median ELA SGP			Median Math SGP		
	District	State	Growth Level	District	State	Growth Level
All students	44.0	50.0	Moderate	52.0	50.0	Moderate
High Needs	38.0	47.0	Low	43.0	46.0	Moderate
Econ. Disadv.	39.0	46.0	Low	44.0	46.0	Moderate
ELLs	27.0	54.0	Low	40.0	50.0	Low
SWD	39.0	43.0	Low	36.0	43.0	Low

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[1] The economically disadvantaged subgroup does not have a CPI target and rating because 2015 is the first year that a CPI was calculated for the economically disadvantaged group and will serve as a baseline for future years' CPI targets.

In 2015 Ludlow's out of school suspension and in school suspension rates were lower than the state rate for all students in the district and since 2013 have declined for all students and subgroups.

Table 8: Ludlow Public Schools
Out of School and In School Suspensions by Subgroup 2013–2015

Group	Type of Suspension	2013	2014	2015	State 2015
High Needs	OSS	6.4%	5.8%	5.0%	4.8%
	ISS	2.2%	1.3%	1.8%	2.7%
Economically disadvantaged*	OSS	7.6%	6.3%	4.6%	5.4%
	ISS	2.2%	1.3%	1.9%	2.9%
Students with disabilities	OSS	9.0%	8.5%	7.8%	6.1%
	ISS	2.8%	1.9%	2.3%	3.4%
ELLs	OSS	--	--	--	3.8%
	ISS	--	--	--	1.8%
All Students	OSS	3.9%	3.6%	2.6%	2.9%
	ISS	1.3%	0.8%	1.2%	1.8%

*Low income students' suspensions are used for 2013 and 2014.

Ludlow's four-year cohort graduation rate was 4.6 percentage points higher than the state rate, and was also above the state rate for the high needs, low income, and students with disabilities subgroups. Between 2011 and 2014 the four-year cohort graduation rate improved for all students, low income students, and high needs students.

Table 9: Ludlow Public Schools
Four-Year Cohort Graduation Rates 2011-2014

Group	Number Included (2014)	Cohort Year Ending				Change 2011-2014		Change 2013-2014		State (2014)
		2011	2012	2013	2014	Percentage Points	Percent Change	Percentage Points	Percent Change	
High needs	148	75.8%	81.8%	78.1%	85.1%	9.3	12.3%	7.0	9.0%	76.5%
Low income	130	73.8%	82.2%	80.2%	86.9%	13.1	17.8%	6.7	8.4%	75.5%
SWD	52	75.4%	66.0%	63.5%	73.1%	-2.3	-3.1%	9.6	15.1%	69.1%
ELLs	--	83.3%	--	--	--	--	--	--	--	63.9%
All students	258	88.4%	87.9%	86.4%	90.7%	2.3	2.6%	4.3	5.0%	86.1%

Between 2010 and 2013 Ludlow's five-year cohort graduation rate declined for the district as a whole and for high needs students, low income students, and students with disabilities.

Table 10: Ludlow Public Schools
Five-Year Cohort Graduation Rates 2010-2013

Group	Number Included (2013)	Cohort Year Ending				Change 2010-2013		Change 2012-2013		State (2013)
		2010	2011	2012	2013	Percentage Points	Percent Change	Percentage Points	Percent Change	
High needs	146	85.2%	80.8%	84.5%	79.5%	-5.7	-6.7%	-5.0	-5.9%	79.2%
Low income	126	87.0%	78.7%	85.3%	81.0%	-6.0	-6.9%	-4.3	-5.0%	78.3%
SWD	52	71.4%	80.7%	69.8%	65.4%	-6.0	-8.4%	-4.4	-6.3%	72.9%
ELLs	--	100%	83.3%	--	--	--	--	--	--	70.9%
All students	258	91.3%	91.1%	90.0%	87.2%	-4.1	-4.5%	-2.8	-3.1%	87.7%

Ludlow's dropout rate was lower than the state rate for all students, high needs students, low income students, students with disabilities, and ELL and former ELL students.

Table 11: Ludlow Public Schools
Dropout Rates by Subgroup 2011–2014

	2011	2012	2013	2014	State 2014
High Needs	1.1%	2.5%	2.6%	2.1%	3.4%
Low income	1.3%	2.4%	3.0%	2.7%	3.6%
SWD	1.6%	2.4%	3.1%	3.2%	3.4%
ELLs	0%	0%	0%	0%	6.2%
All students	0.8%	1.9%	2.0%	0.9%	2.0%

Grade and School Results

In 2015 ELA proficiency rates were below the state rate. Between 2012 and 2015 ELA proficiency rates did not improve in any tested grade except the 4th grade.

- ELA proficiency rates were below the state rate by 22 percentage points in the 5th grade, by 9 percentage points in the 3rd grade, by 4 and 5 percentage points in the 7th and 8th grades, respectively, and by 3 and 1 percentage points in the 6th and 10th grades, respectively.
    - Between 2012 and 2015 ELA proficiency rates decreased by 8 percentage points in the 5th grade, by 3 percentage points in the 10th grade, and by one percentage point in the 3rd and 7th grades, and did not improve in the 6th and 8th grades.

- Between 2012 and 2015 ELA proficiency in the 4th grade increased by 8 percentage points, from 48 percent in 2012 to 56 percent in 2015, and was 3 percentage points above the 2015 state rate of 53 percent.

Table 12: Ludlow Public Schools
ELA Percent Proficient or Advanced by Grade 2012–2015

Grade	Number	2012	2013	2014	2015	State	4-Year Trend	2-Year Trend
3	165	52.0%	52.0%	55.0%	51.0%	60.0%	-1.0%	-4.0%
4	203	48.0%	52.0%	44.0%	56.0%	53.0%	8.0%	12.0%
5	216	57.0%	55.0%	52.0%	49.0%	71.0%	-8.0%	-3.0%
6	233	68.0%	63.0%	65.0%	68.0%	71.0%	0.0%	3.0%
7	196	67.0%	69.0%	73.0%	66.0%	70.0%	-1.0%	-7.0%
8	218	75.0%	78.0%	76.0%	75.0%	80.0%	0.0%	-1.0%
10	229	93.0%	94.0%	94.0%	90.0%	91.0%	-3.0%	-4.0%
All	1460	66.0%	66.0%	66.0%	66.0%	--	0.0%	0.0%

ELA proficiency rates were below the state rate for each tested grade at Chapin Street Elementary and Paul R. Baird Middle, and in the 5th grade at Veterans Park Elementary.

Table 13: Ludlow Public Schools
ELA Proficient or Advanced by School and Grade 2014-2015

School	3	4	5	6	7	8	10	Total
EES: East Street Elementary	--	--	--	--	--	--	--	--
ES: Chapin Street Elementary	51%	--	--	--	--	--	--	51%
ES: Veterans Park Elementary	--	55%	48%	--	--	--	--	52%
MS: Paul R. Baird Middle	--	--	--	68%	66%	75%	--	70%
HS: Ludlow Senior High	--	--	--	--	--	--	91%	91%
District	51%	56%	49%	68%	66%	75%	90%	66%
State	60%	53%	71%	71%	70%	80%	91%	--

Between 2012 and 2015 ELA proficiency rates did not improve at Chapin Street Elementary, Veterans Park Elementary, Paul R. Baird Middle, and Ludlow Senior High. ELA proficiency rates for high needs students declined by 13 percentage points at Chapin Street Elementary, by 10 percentage points at Veterans Park Elementary, by 8 percentage points at Paul R. Baird Middle, and by 10 percentage points at Ludlow Senior High.

Table 14: Ludlow Public Schools
ELA Proficient or Advanced by School and Subgroup 2012-2015

	2012	2013	2014	2015	3- or 4-Year Trend
EES: East Street Elementary	--	--	--	--	--
ES: Chapin Street Elementary	53%	53%	55%	51%	-2
High Needs	50%	42%	39%	37%	-13
Economically disadvantaged	--	--	--	42%	--
ELL and former ELL	--	--	25%	--	--
Students with disabilities	32%	13%	25%	16%	-16
ES: Veterans Park Elementary	53%	53%	49%	52%	-1
High Needs	41%	36%	33%	31%	-10
Economically disadvantaged	--	--	--	42%	--
ELL and former ELL	10%	25%	22%	0%	--
Students with disabilities	14%	12%	9%	13%	-1
MS: Paul R. Baird Middle	70%	71%	73%	69%	-1
High Needs	57%	51%	54%	49%	-8
Economically disadvantaged	--	--	--	58%	--
ELL and former ELL	0%	30%	64%	36%	6
Students with disabilities	14%	21%	19%	21%	7
HS: Ludlow Senior High	93%	95%	96%	91%	-2
High Needs	88%	88%	89%	78%	-10
Economically disadvantaged	--	--	--	88%	--
ELL and former ELL	--	--	--	--	--
Students with disabilities	70%	71%	76%	61%	-9

Between 2012 and 2015 math proficiency rates improved in grades 3 through 6 but did not improve in the 7th, 8th, and 10th grades.

- Math proficiency rates in the district increased between 2012 and 2015 by 15 percentage points in the 3rd grade, by 10 percentage points in the 4th grade, by 8 percentage points in the 5th grade, and by 4 percentage points in the 6th grade.
  - Math proficiency rates were above the state rate by 10 percentage points in the 6th grade, by 7 percentage points in the 4th grade, and by 2 percentage points in the 7th and 10th grades.

- Math proficiency rates in the district decreased by 8 percentage points in the 8th grade and by 3 percentage points in the 7th grade, and did not improve in the 10th grade.
  - Math proficiency rates were below the state rate by 18 percentage points in the 5th grade, by 14 percentage points in the 8th grade, and by 5 percentage points in the 3rd grade.

Table 15: Ludlow Public Schools
Math Percent Proficient or Advanced by Grade 2012-2015

Grade	Number	2012	2013	2014	2015	State	4-Year Trend	2-Year Trend
3	165	50.0%	62.0%	68.0%	65.0%	70.0%	15.0%	-3.0%
4	203	44.0%	42.0%	37.0%	54.0%	47.0%	10.0%	17.0%
5	216	41.0%	55.0%	52.0%	49.0%	67.0%	8.0%	-3.0%
6	234	68.0%	62.0%	72.0%	72.0%	62.0%	4.0%	0.0%
7	198	56.0%	53.0%	42.0%	53.0%	51.0%	-3.0%	11.0%
8	216	54.0%	52.0%	39.0%	46.0%	60.0%	-8.0%	7.0%
10	232	81.0%	86.0%	87.0%	81.0%	79.0%	0.0%	-6.0%
All	1,464	57.0%	59.0%	56.0%	60.0%	0.0%	3.0%	4.0%

Math proficiency rates were equal to or above the state rate in each tested grade at Paul R. Baird Middle and Ludlow Senior High and in the 4th grade at Veterans Park Elementary and below the state rate in the 3rd grade at Chapin Street Elementary and in the 5th grade at Veterans Park.

Table 16: Ludlow Public Schools
Math Proficient or Advanced by School and Grade 2014-2015

School	3	4	5	6	7	8	10	Total
EES: East Street Elementary	--	--	--	--	--	--	--	--
ES: Chapin Street Elementary	66%	--	--	--	--	--	--	66%
ES: Veterans Park Elementary	--	53%	48%	--	--	--	--	50%
MS: Paul R. Baird Middle	--	--	--	73%	53%	47%	--	58%
HS: Ludlow Senior High	--	--	--	--	--	--	84%	84%
District	65%	54%	49%	72%	53%	46%	81%	60%
State	70%	47%	67%	62%	51%	60%	79%	--

Between 2012 and 2015 math proficiency rates improved for the school whole by 15 percentage points at Chapin Street Elementary and by 9 percentage points at Veterans Park Elementary. In the same period, there were notable declines in math proficiency for high needs students at Paul R. Baird Middle and Ludlow Senior High.

Table 17: Ludlow Public Schools
Math Proficient or Advanced by School and Subgroup 2012-2015

	2012	2013	2014	2015	3- or 4-Year Trend
EES: East Street Elementary	--	--	--	--	--
ES: Chapin Street Elementary	51%	63%	68%	66%	15
High Needs	48%	55%	50%	45%	-3
Economically disadvantaged	--	--	--	58%	--
ELL and former ELL	--	--	33%	--	--
Students with disabilities	19%	21%	30%	10%	-9
ES: Veterans Park Elementary	42%	49%	46%	51%	9
High Needs	31%	30%	34%	32%	1
Economically disadvantaged	--	--	--	42%	--
ELL and former ELL	30%	25%	22%	28%	-2
Students with disabilities	9%	13%	16%	13%	4
MS: Paul R. Baird Middle	61%	57%	51%	58%	-3
High Needs	50%	35%	30%	37%	-13
Economically disadvantaged	--	--	--	48%	--
ELL and former ELL	8%	27%	33%	28%	20
Students with disabilities	16%	11%	7%	9%	-7
HS: Ludlow Senior High	81%	88%	90%	84%	3
High Needs	74%	73%	82%	62%	-12
Economically disadvantaged	--	--	--	74%	--
ELL and former ELL	--	--	--	--	--
Students with disabilities	41%	45%	59%	39%	-2

Science proficiency rates improved notably throughout the district, but remained below the state rate in each tested grade.

- 5th grade science proficiency rates increased 18 percentage points, from 26 percent in 2012 to 44 percent in 2015, 7 percentage points below the state rate of 51 percent.

- 8th grade science proficiency rates increased 14 percentage points, from 27 percent in 2012 to 41 percent in 2015, 1 percentage point below the state rate of 42 percent.

- 10th grade science proficiency rates increased 15 percentage points, from 53 percent in 2012 to 68 percent in 2015, 4 percentage points below the state rate of 72 percent.

Table 18: Ludlow Public Schools
Science Percent Proficient or Advanced by Grade 2012-2015

Grade	Number	2012	2013	2014	2015	State	4-Year Trend	2-Year Trend
5	216	26.0%	42.0%	43.0%	44.0%	51.0%	18.0%	1.0%
8	215	27.0%	31.0%	37.0%	41.0%	42.0%	14.0%	4.0%
10	225	53.0%	71.0%	78.0%	68.0%	72.0%	15.0%	-10.0%
All	656	37.0%	48.0%	52.0%	51.0%	54.0%	14.0%	-1.0%

Science proficiency rates were below the state rate for each tested grade at Veterans Park Elementary and Ludlow Senior High, and were equal to the state rate at Paul R. Baird Middle.

Table 19: Ludlow Public Schools
Science Proficient or Advanced by School and Grade 2014-2015

School	3	4	5	6	7	8	10	Total
EES: East Street Elementary	--	--	--	--	--	--	--	--
ES: Chapin Street Elementary	--	--	--	--	--	--	--	--
ES: Veterans Park Elementary	--	--	44%	--	--	--	--	44%
MS: Paul R. Baird Middle	--	--	--	--	--	42%	--	42%
HS: Ludlow Senior High	--	--	--	--	--	--	69%	69%
District	--	--	44%	--	--	41%	68%	51%
State	--	--	51%	--	--	42%	72%	54%

Between 2012 and 2015 Science proficiency rates increased by 18 percentage points at Veterans Park Elementary, by 15 percentage points at Paul R. Baird Middle, and by 17 percentage points at Ludlow Senior High.

Table 20: Ludlow Public Schools
Science Proficient or Advanced by School and Subgroup 2012–2015

	2012	2013	2014	2015	3- or 4-Year Trend
EES: East Street Elementary	--	--	--	--	--
ES: Chapin Street Elementary	--	--	--	--	--
High Needs	--	--	--	--	--
Economically disadvantaged	--	--	--	--	--
ELL and former ELL	--	--	--	--	--
Students with disabilities	--	--	--	--	--
ES: Veterans Park Elementary	26%	43%	43%	44%	18
High Needs	21%	28%	30%	32%	11
Economically disadvantaged	--	--	--	39%	--
ELL and former ELL	--	--	--	--	--
Students with disabilities	11%	20%	13%	14%	3
MS: Paul R. Baird Middle	27%	32%	39%	42%	15
High Needs	20%	19%	29%	22%	2
Economically disadvantaged	--	--	--	27%	--
ELL and former ELL	--	--	--	--	--
Students with disabilities	6%	9%	3%	5%	-1
HS: Ludlow Senior High	53%	72%	81%	70%	17
High Needs	44%	50%	64%	45%	1
Economically disadvantaged	--	--	--	56%	--
ELL and former ELL	--	--	--	--	--
Students with disabilities	23%	18%	44%	27%	4

Leadership and Governance

Contextual Background

Through increased communication and engagement with stakeholders (parents, principals, teachers, and town officials), the superintendent has been instrumental in improving the culture in Ludlow. This positive leadership has promoted shared responsibility for student learning in the district and the community.

District planning documents are spare, with little definition of what will be required to accomplish the objectives and how achievement of the objectives will be measured. Also, since the School Improvement Plans are not aligned with the district plan, there is little evidence that district and school plans in combination drive a systematic process for the steady improvement of student achievement. Without district and school leadership to set goals and determine desired student performance outcomes, improvement in the district has stalled.

Strength Finding

1. **Over the past four years, the superintendent has provided consistent leadership that has improved communication and fostered good relations with stakeholders.**

   A. Interviewees told the review team that the previous superintendent and the school committee did not have a good working relationship.

      1. School committee members described the relationship between the previous superintendent and the committee members as "adversarial."

      2. A school administrator said that there was conflict between the previous superintendent and both the school committee and the teachers.

      3. The current superintendent stated that he was brought in to rebuild relationships.

   B. In 2014 the superintendent received an "Exemplary" rating by the school committee on his performance in the area of family and community engagement.

      1. School committee members noted that the superintendent's efforts have meant extremely good relations with the town and the community.

      2. They also mentioned his skill in resolving situations quickly and in bringing together stakeholders, making parents and staff feel valued and respected.

   C. A town official indicated that town officials are "very pleased" with the superintendent's active collaboration on and participation in municipal activities such as developing the annual budget. Town officials said that they appreciated the increased communication between the

superintendent and town officials, noting "There is more communication with him" and "He's very much a part of the town and thinks about the impact [of the budget] on the town."

1. Ludlow town officials said that they are better informed and involved earlier in the school department's budget process and with ongoing financial operations.

2. A town official stated that she has gotten a "better view" of the school department's budget process than in previous years and as a result now has a better understanding of the allocations.

3. A town official stated that the superintendent brought her committee in at the beginning of the budget process and has been very transparent.

4. A town official stated that, for the most part, obtaining financial information from the school department had gotten much better.

5. The superintendent is a member of the select board's budget subcommittee.

6. The superintendent and a school committee member are on the town's long-range planning committee.

D. Parents (210) and staff members (156, including 115 teachers) completed separate surveys on the superintendent's performance. Responses were on a six-point scale: Unacceptable, Needs Improvement, Good, Excellent, Outstanding, and Do Not Know.

1. When asked how their expectations of the superintendent were being met in the area of town relations, of 210 parents who responded 48.6 percent rated the superintendent as Excellent and 14.3 percent rated him as Outstanding.

2. When asked how their expectations of the superintendent were being met in the area of communications/public relations, of 210 parents who responded 41 percent rated the superintendent as Excellent and 29.1 percent rated him as Outstanding. Of 156 staff who responded to the question 38.9 percent rated the superintendent as Excellent and 38.89 percent rated him as Outstanding.

Impact: The superintendent has been instrumental in improving communication and relations in Ludlow. School business with the town is conducted in a positive and productive context and parent and staff engagement is strong. This promotes a culture of shared responsibility for student learning within the district and the broader community.

Challenges and Areas for Growth

2. **The district's planning documents do not provide a blueprint for instructional improvement.**

   A. The District Improvement Plan (DIP) does not include benchmarks, resources (including dollar amounts), and timelines for completing initiatives.

   B. DIP goals are not SMART (Specific and Strategic; Measurable; Action-Oriented; Rigorous; and Realistic; Results-focused; and Timed and Tracked).

   C. The DIP does not specify assessment/measurement tools that staff will use to gauge the progress of DIP implementation.

   D. Interviews and a document review indicated that few stakeholders participated in developing the DIP and the SIPs.

   E. The District Improvement Plan (DIP) is dated 2015–2018 while School Improvement Plans (SIPs) are dated 2013–2016.

   F. The instructional goals in the DIP and in the SIPs are not aligned.

   G. A document review indicated that several SIPs have not been updated recently.

      1. Two of the SIPs were developed by previous principals and still include their names.

      2. In the Chapin Street 2013–2016 SIP, most activities go through 2013, the plan's first year.

   H. At the time of the review SIPs were not posted on schools' websites.

   I. The 2013–2014 high school SIP contains only two goals.

   J. A review of agendas and notes for administrative team meetings indicated a focus on school operations, including scheduling, update on School Choice, Medical Emergency Response Protocol, and Aspen (Student Information System).

      1. Of 290 items for discussion between August, 2014, and October, 2015, only 1 concerned the District Improvement Plan. Agenda notes for June 25–26, 2015, indicated that the District Improvement Plan had been completed.

      2. During this period, none of the agenda items referenced developing, reviewing, or updating School Improvement Plans.

   K. There is not an expectation is that the superintendent report periodically to the school committee, staff members, and to the community on the progress on each of the DIP goals, or that each principal report to the community on progress on each school's SIP goals.

Impact: Without a systematic planning process, the district cannot achieve a coherent instructional focus across its schools. School staff members and the community are unclear about the district's instructional goals and desired student performance outcomes. Without complete and comprehensive District and School Improvement Plans, the district schools and community are unable to monitor and refine continuous improvement efforts and they cannot ensure accountability for meeting improvement priorities.

Recommendations

1. **The superintendent, with wide input from stakeholders, should lead the revision of the current DIP and SIPs with the goal of developing clear, focused, specific, and measureable district and school plans based on student achievement data and designed to improve student achievement.**

    A. Current district and school improvement plans should be revised.

    1. The district should systematically analyze student achievement and other data and use this data to inform goals and priorities for action in planning documents.

    2. The district should use the results of the analysis to establish SMART goals (Specific and Strategic; Measureable; Action Oriented; Rigorous, Realistic, and Results-Focused; and Timed and Tracked).

    3. The DIP should include SMART goals, action steps, benchmarks, person(s) responsible, measures of progress, resources (including dollar amounts), and timelines.

    B. The superintendent should ensure that all principals align their SIPs with the DIP and that they contain SMART goals.

    1. The development of the SIPs should: include input from all stakeholders, particularly school councils; be based on an analysis of student achievement and other data; include measureable performance goals for students; and drive the development, implementation, and modification of educational programs.

    C. The DIP and SIPs should be used as tools for continuous improvement.

    1. Procedures should be established by the district and schools to periodically review progress toward DIP and SIP goals. When required to meet changed conditions, adjustments should be made to strategic activities and benchmarks.

    2. The school committee should be given periodic updates about progress toward goals.

    D. The implementation of the SIPs should be monitored consistently and timely adjustments should be made as necessary.

    1. The superintendent should meet regularly with principals to review the progress of the implementation of the SIPs and the improvement of student achievement in the schools.

2. Principals should use the SIPs to inform their self-assessment and goal setting process as part of their educator plans, and teachers' educator plans should be aligned with their school's SIP and the DIP.

Recommended resources:

- ESE's *District Standards and Indicators* (http://www.mass.gov/edu/docs/ese/accountability/district-standards-indicators.pdf) identify the characteristics of effective districts in supporting and sustaining school improvement.

- The *District Self-Assessment* (http://www.mass.gov/edu/docs/ese/accountability/district-reports/district-self-assessment.pdf) frames the District Standards and Indicators, along with key questions, in a rubric for conducting a scan of current practice, identifying areas of strength and highlighting areas requiring greater focus.

- *Elements of a Well-Written Measure* and *Crafting Meaningful Measures Checklist* describe how to articulate clear measures of implementation (output) and change (outcomes). They are part of ESE's *District Data Team Toolkit* (http://www.mass.gov/edu/docs/ese/accountability/dart/district-data-toolkit.pdf).

- *Turnaround Practices in Action* (http://www.mass.gov/edu/docs/ese/accountability/turnaround/practices-report-2014.pdf) is a practice guide that highlights practices and strategies observed in turnaround schools that have shown significant and rapid gains in student achievement. It presents key practices for consideration as avenues to improve and sustain ongoing and future turnaround efforts.

- The *Turnaround Practices in Achievement Gain Schools Video Series* (http://www.mass.gov/edu/government/departments-and-boards/ese/programs/accountability/support-for-level-3-4-and-5-districts-and-schools/school-and-district-turnaround/turnaround-in-massachusetts/turnaround-practices-in-achievement-gain-schools-video-.html) highlights the work of three Achievement Gain schools referenced in the Turnaround Practices report. In these videos, the school staff and leadership tell their unique turnaround story through the lens of the four high leverage turnaround practices (leadership, intentional practices, student specific support, and climate and culture). Each video has an accompanying Viewing Guide.

- ESE's *Planning for Success* tools (http://www.doe.mass.edu/research/success/) support the improvement planning process by spotlighting practices, characteristics, and behaviors that support effective planning and implementation and meet existing state requirements for improvement planning.

- *Focused Planning for Accelerating Student Learning* (http://www.mass.gov/edu/docs/ese/accountability/dsac/focused-planning.pdf) provides guidance for Level 3 districts to accelerate achievement for all students through the development of a focused, actionable and sustainable Accelerated Improvement Plan (AIP).

- *District Accelerated Improvement Planning - Guiding Principles for Effective Benchmarks* (http://www.mass.gov/edu/docs/ese/accountability/turnaround/level-4-guiding-principles-effective-benchmarks.pdf) provides information about different types of benchmarks to guide and measure district improvement efforts.

- *What Makes a Goal Smarter?* (http://www.doe.mass.edu/edeval/resources/presentations/SMARTGoals/Handout5.pdf) is a description of SMART goals with accompanying examples. The handout was designed to support educators in developing goals as part of the educator evaluation system, but could also be a useful reference for the district as it develops or refines its DIP and SIPs.

Benefits: By implementing this recommendation, the district will develop measureable goals and a specific action plan for achieving them. This will provide a path to continuous improvement and more coherent and effective district systems.

Curriculum and Instruction

Contextual Background

The district has developed an inclusive process for the development of curriculum maps and the adoption of curriculum materials. The district's written curriculum maps are aligned with the Common Core and vertically aligned from Pre-K–grade 12, but there is little vertical alignment of the implemented curriculum either within schools or between schools and across grade spans. Grade-level leaders, department chairs, and instructional leadership teams (all full-time teachers) provide teacher leadership for the implementation of curriculum in each school.

In observed classrooms review team members found that the quality and rigor of instruction was inconsistent throughout the district. Of particular concern were a wide variation between levels in the area of student engagement and critical thinking and a low incidence of lessons structured to be accessible by all learners in the classrooms.

Strength Finding

1. **The district has developed an inclusive process for the development of math and writing curriculum maps and the adoption of math and writing curriculum materials.**

   A. Interviews and a document review indicated that in the spring of 2015 the director of curriculum created two task forces, one to review math curriculum Pre-K–12, and the other to review writing, Pre-K–12. The task forces were formed in part to address problems associated with an absence of vertical alignment K–8. They included representatives from all grades, as well as special education and inclusion specialists.

      1. An elementary school principal chaired the math task force and the director of curriculum led the writing task force.

      2. The Math Task Force developed a Pre-K–12 Math Action Plan and chose the math program Eureka Math for piloting K–5.

      3. The Writing Task Force developed a Pre-K–12 Writing Task Force Action Plan and chose to adopt the Empowering Writers program.

   B. Teachers told the review team that department chairs and grade-level leaders (GLLs) are responsible for curriculum at the school level.

      1. GLLs meet once each week with their school's Instructional Leadership Team (ILT), regularly with teachers in grade-level meetings, and monthly with the director of curriculum. The GLLs are responsible for leading curriculum discussions in their schools at grade-level meetings and during common planning time.

     a. At the monthly district-level meetings with the director of curriculum, GLLs work together to improve the vertical alignment and cohesiveness of curriculum.

     b. GLLs introduced the Eureka Math program.

     c. Pre-K–5 leaders are collaborating on implementation and attempting to support classroom teachers.

2. High school department chairs confirmed their role about curriculum and emphasized that teachers all play a role in the review and revision of curriculum at the high school.

Impact: The active involvement of teachers in the process of developing and implementing curriculum, districtwide and at the school level provides a sense of ownership and pride. It also contributes to the consistent use, alignment, and effective delivery of the district's curricula.

Challenges and Areas for Growth

2. The district's written curriculum maps are aligned with the Common Core standards and vertically aligned from Pre-K–grade 12, but there is little vertical alignment of the implemented curriculum either within schools or across schools and grade spans.

    A. Administrators and teachers acknowledged the absence of alignment.

     1. A district leader told the team that the absence of vertical alignment in the district's implemented curriculum was the impetus to establish both the math and writing task forces.

       a. District leaders recognized that making grade-level standards available to teachers was not sufficient to ensure vertical alignment.

       b. A principal said that she appreciated the work of the math and writing task forces because it led to program adoptions that will build in vertical consistency.

     2. Grade-level leaders (GLLs) expressed awareness of the need to ensure vertical alignment of curriculum.

       a. GLLs told the review team that the need for vertical alignment prompted the acquisition of the new writing and math programs.

     3. Interviewees indicated that little time is available to collaborate at the elementary and middle-school levels.

       a. Teachers and GLLs have little time to talk and plan with their colleagues in other Ludlow schools.

       b. GLLs said "It's hard to get everyone on the same page," noting "We only get one day in the year."

      c.   A principal told the team, "We don't bring our staffs together as much as we should" and said "We could do more to bring teachers together.

    4.   Vertical alignment between the middle and high schools is an issue.

      a.   High school department chairs expressed concern about gaps in alignment between the middle and high schools.

      b.   High school department chairs also reported an absence of communication between the high school and the middle school department chairs, with the result that many issues are placed "on the back burner."

Impact: In the absence of a vertically aligned curriculum, it is difficult for teachers to implement intentionally structured and sequenced learning. Without vertical alignment of curriculum, it is challenging for teachers to ensure that students are learning the necessary skills and knowledge to enable them to be successful in higher-level work in succeeding grades.

3.   **In observed classrooms the quality and rigor of instruction was inconsistent from class to class within schools, from school to school, and throughout the district, and instruction often did not challenge students.**

    The team observed 66 classes throughout the district: 28 at the high school, 15 at the middle school, and 23 at the 3 elementary schools. The team observed 31 ELA classes, 17 mathematics classes, and 18 classes in other subject areas. The observations were approximately 20 minutes in length. All review team members collected data using ESE's instructional inventory, a tool for recording observed characteristics of standards-based teaching. This data is presented in Appendix C.

    A.   **Focus Area #1–Learning Objectives and Instruction** In most observed classrooms teachers demonstrated knowledge of subject matter and content. At the same time, there was variation in the provision and use of learning objectives, the presence of high expectations aligned to the learning objective, and the use of appropriate instructional strategies well matched to the learning objectives.

      1.   In observed classrooms, team members saw strong or moderate evidence that teachers provided and reinforced a clear learning objective(s) in 52 percent of elementary classes, in 53 percent of middle-school classes, and in 61 percent of high-school classes.

        a.   An example of a clear learning objective that was posted and referred to was seen in an Honors British Literature class at the high school. The objective stated, "Students will learn to use divergent opinions and knowledge to overcome obstacles."

        b.   An example of a class in which a clear learning objective was not present and/or reflected was a middle-school class where no learning objective was posted and the teacher stated in reference to the lesson, "There is a lot of graphing on MCAS."

2. Review team members observed strong or moderate evidence that teachers implemented a lesson that reflected high expectations aligned to learning objective(s) in 57 percent of elementary classes, in 73 percent of middle-school classes, and in 54 percent of high-school classes.

3. In 65 percent of observed elementary classes, in 73 percent of middle-school classes, and in 54 percent of high-school lessons there was strong or moderate evidence that most instructional strategies were well matched to the learning objectives so that most students could access and engage with the content.

B. **Focus Area #2–Student Engagement and Critical Thinking** The team observed a wide variation between levels in the quality of instruction in this focus area. For example, most students were observed to be motivated and engaged and involved in critical thinking activities, but a lower incidence of these characteristics was seen at the high school (see Appendix C, the Instructional Inventory, characteristic #5).

1. Members of the review team observed strong or moderate evidence that most students were motivated and engaged with the content and/or lesson objective(s), were actively participating in the activities, and many were volunteering responses or questions in 91 percent of elementary classes, in 93 percent of middle-school classes, but in only 57 percent of high-school classes.

2. Review team members observed strong or moderate evidence that most students engaged with tasks that require critical thinking, analysis, learning, and/or application of new knowledge in 65 percent of elementary classrooms, in 80 percent of middle-school classrooms, and in 54 percent of high-school classrooms.

C. **Focus Area #3–Differentiated Instruction and Classroom Culture** Review team members noted that in observed classrooms differentiated instruction was the least well- developed characteristic of effective instruction (see Appendix C, the Instructional Inventory, characteristic #8) .

1. For example, team members found strong or moderate evidence that lessons were structured with multiple entry points to be accessible to most learners and account for differences in learning needs, interests, and level of readiness in only 39 percent of elementary classes, in only 27 percent of middle-school classes, and in just 25 percent of high-school classes.

Impact: Without clear learning objectives, sufficient opportunities for higher-order thinking and analysis, and lessons structured to be accessible by all learners in every classroom, Ludlow students do not have the tools they need to achieve at higher levels and to succeed in college and careers.

4. **Leaders and teachers in Ludlow do not have a common understanding of what constitutes effective instruction for all students. The district does not have a leader with the specific responsibility for oversight of instruction districtwide. This leaves matters of what to teach and how to teach up to individual schools and classroom teachers.**

   A. Leaders and teachers do not appear to have a shared understanding of the elements of effective teaching.

      1. When asked to describe Ludlow's instructional model or what good teaching looks like, one leader replied, "Responsive classroom; student engagement. Some will say UBD (Understanding by Design) is important…."

      2. Teachers gave a variety of responses to the same question. Some teachers' responses included individual elements of effective teaching but overall did not provide a clear, coherent description of good teaching. Responses included: student engagement; objectives posted and an agenda; engagement student to student, student to teacher, not a lot of lecture; creativity and respect for differences; broad curriculum; and meeting the needs of all students.

      3. A principal told the team that across the district there are no common rubrics or common expectations for instructional practice.

   B. Interviews and a document review indicated that at the district level only the director of curriculum has some responsibility for instruction. However, the director's other responsibilities include: direction, development and implementation of curriculum PK-12; professional development; grants acquisition and management; Title I programs; home schooling; transitional bilingual education; English as a Second Language; and the educator evaluation system.

      1. When asked what obstacles stand in the way of the district providing support for instruction to teachers, a district leader reported that the biggest obstacles are not having district content specialists and the absence of instructional coaches.

   C. There is limited evidence that school leaders provide teachers with consistent support in classrooms.

      1. Principals told the team that because of school management and other demands, they are able to spend less than 20 percent of their time being instructional leaders. One said, "I can't get into classrooms as frequently as I would like to."

      2. Interviews and a document review indicated that in the three elementary schools ----other than the principals---there are no formal instructional leaders.

      3. The middle school, with a staff of more than 70, has one assistant principal.

4. A district leader told the team that because there is limited instructional leadership at the school level, the district developed a role for grade-level leaders (GLLs).

5. Teachers reported that there is an Instructional Leadership Team (ILT) at each school, consisting of representative teachers and GLLs or department chairs to assist with curriculum coordination. The ILTs meet regularly to discuss school-level issues.

6. Department chairs and GLLs provide support for new teachers or teachers implementing new programs. However, teachers serving in two roles teach full time and have little time to provide in-class support. Most support is provided outside the classroom.

   a. Department chairs reported that if a teacher is having difficulty in the classroom, they provide help.

D. Decisions about what is taught and how it is taught are made at the school level.

1. Staff told the team that final decisions about what is taught are made by "…the majority."

   a. Staff members reported that "Unlike [with] the prior administration…we now have ownership [of instruction]."

Impact: Without a common understanding of high-quality instruction and without a system to provide oversight and support as teachers improve their instructional practice, Ludlow will be challenged to improve student achievement.

Recommendations

1. **District and school leaders should collaborate to define, communicate, and implement a research-based, high-quality, instructional model.**

   A. District and school leaders should identify a clear, research-based instructional model of what constitutes excellent teaching and ensure that the model is communicated, agreed upon, and supported in all the schools.

   1. The model should address the need for rigor, higher-order thinking, strategies that support diverse learners, and assessing students' understanding throughout the lesson in order to focus instruction.

   B. The district and each school should plan to develop teachers' ability to implement the district's instructional model through appropriate professional development (PD) and monitoring.

   1. Highly focused, intentional, time-bound instructional walkthroughs should become a normative practice in the district as a way to continue to refine the district's instructional

model, to identify strengths and areas for growth in overall instructional practice, to provide feedback schoolwide, and to inform the district's PD plan.

C. The district should clarify roles and responsibilities with regard to instruction.

  1. The district should clearly communicate expectations for principals to ensure that their main responsibility is instructional leadership.

  2. In order for teacher leaders to be successful, their roles must be clarified and communicated.

  3. The district might consider modifying principals' tasks and teachers' schedules to ensure that principals and teacher leaders have sufficient time to provide consistent in-class support to all educators at each school.

D. The district should consider the creation of a districtwide leadership position with responsibility for the oversight of instruction.

E. Building on the inclusive process of developing and implementing curriculum, the district and each school should support and continue to improve instruction through opportunities for collaboration and planning among grade-level and subject-level colleagues.

  1. These same structures may also provide opportunities for educators to watch videos of effective teaching and discuss and calibrate their understanding of effective strategies.

Recommended resources:

- ESE's *Learning Walkthrough Implementation Guide* (http://www.mass.gov/edu/government/departments-and-boards/ese/programs/accountability/tools-and-resources/district-analysis-review-and-assistance/learning-walkthrough-implementation-guide.html) is a resource to support instructional leaders in establishing a *Learning Walkthrough* process in a school or district. It is designed to provide guidance to those working in an established culture of collaboration as well as those who are just beginning to observe classrooms and discuss teaching and learning in a focused and actionable manner. (The link above includes a presentation to introduce Learning Walkthroughs to stakeholders.)

- Appendix 4, *Characteristics of Standards-Based Teaching and Learning: Continuum of Practice* (http://www.mass.gov/edu/docs/ese/accountability/dart/walkthrough/continuum-practice.pdf) is a framework that provides a common language or reference point for looking at teaching and learning.

- *Characteristics of an Effective Standards-Based K-12 Science and Technology/Engineering Classroom* (http://www.doe.mass.edu/STEM/Standards-BasedClassroom.pdf) and *Characteristics of a Standards-Based Mathematics Classroom*

(http://www.doe.mass.edu/STEM/news07/mathclass_char.pdf) are references for instructional planning and observation, intended to support activities that advance standards-based educational practice, including formal study, dialogue and discussion, classroom observations, and other professional development activities.

- *Connecting Math and Literature* (http://www.doe.mass.edu/STEM/instructional.html, bottom of web page) is a resource for K-8 teachers for creating a math library for children to connect math and literature.

Benefits: By adopting this recommendation, the district will provide in all classrooms more consistent, effective instruction. A shared understanding of effective instruction will also increase clarity about instructional expectations and will provide a framework for useful feedback to teachers. Learning walkthroughs and increased opportunities for collaborative work will provide embedded professional development and will enable teachers to learn from each other.

2. **The district should clarify the curriculum leadership structure in the district and provide sufficient time and support for the consistent development, alignment, and effective delivery of the district's curricula.**

   A. The district should make clear who is responsible for overseeing curriculum development and renewal at the district and school levels.

   B. Time should also be provided to complete this important development work.

      1. The district should consider ways to provide sufficient common planning time at all levels to support curriculum development, revision, and renewal.

   C. The district's curriculum leaders should consider instituting the Understanding By Design framework and use backward design of curricula Pre-K–12.

      1. The district should begin this process by determining what skills and knowledge students should have when they graduate from Ludlow High School and plan backward from that point.

   D. The district should also provide teachers at all schools with high-quality and sustained professional development time to develop the skills and knowledge to appropriately ensure vertical and horizontal curriculum alignment.

Recommended resources:

- *Local District Common Core Implementation – Progress and Capacity Rubric* (http://www.ccsso.org/Documents/District%20Common%20Core%20Capacity%20Rubric%20%20130910.pdf) from the Council of Chief State School Officers (CCSSO) is a tool for districts to use to assess their progress on Common Core implementation and to identify areas of strength and improvement.

- *Creating Curriculum Units at the Local Level*
  (http://www.doe.mass.edu/candi/model/mcu_guide.pdf) is a guidance document that can serve as a resource for professional study groups, as a reference for anyone wanting to engage in curriculum development, or simply as a way to gain a better understanding of the process used to develop Massachusetts' Model Curriculum Units.

- *Creating Model Curriculum Units*
  (http://www.youtube.com/playlist?list=PLTuqmiQ9ssquWrLjKc9h5h2cSpDVZqe6t) is a series of videos that captures the collaboration and deep thinking by curriculum design teams over the course of a year as they worked to develop Massachusetts' Model Curriculum Units. It includes videos about developing essential questions, establishing goals, creating embedded performance assessments, designing lesson plans, selecting high-quality materials, and evaluating the curriculum unit.

- *Model Curriculum Units*
  (http://www.youtube.com/playlist?list=PLTuqmiQ9ssqvx_Yjra4nBfqQPwc4auUBu) is a video series that shows examples of the implementation of Massachusetts' Model Curriculum Units.

- The *Model Curriculum Unit and Lesson Plan Template*
  (http://www.doe.mass.edu/candi/model/MCUtemplate.pdf) includes Understanding by Design elements. It could be useful for districts' and schools' curriculum development and revision.

- ESE's *Quality Review Rubrics* (http://www.doe.mass.edu/candi/model/rubrics/) can support the analysis and improvement of curriculum units.

- EdReports.org (http://www.edreports.org/) provides free, independent reviews of K-12 education materials. The reviews focus on alignment to the Common Core and other indicators of high quality as recommended by educators.

Benefits: When both the written and taught curricula are vertically aligned, student learning is cumulative rather than repetitive. Teaching becomes intentionally structured and sequenced so that students are learning the knowledge and skills that will progressively prepare them for more challenging, higher-level work. Strong central office direction for curriculum will facilitate curricular coherence and ensure that the decisions about programs and initiatives serve the entire district.

Assessment

Contextual Background

There is districtwide mistrust of standardized assessments including MCAS tests and a preference for district-developed assessments. These convictions, in combination with individual teachers' freedom to adjust district-developed assessments such as the District Math Assessments and the district writing prompts as they deem necessary, mean that collection of teacher-developed assessments for school and district analysis is not meaningful since many of the assessments differ from one another and so cannot be treated as comparable. This leaves the district without a valid and reliable measure of its students' achievement and so unable to make instructional decisions that address its students' needs.

Challenges and Areas for Growth

1. **With the collection, dissemination, and analysis of assessment data in the district taking place most frequently at the teacher level, schools and the district have limited knowledge of how their students are doing overall. Secondary teachers reported preferring assessments developed by teachers to district and standardized tests.**

    A. In the elementary schools (K–5), the teachers use the Benchmark Assessment System (BAS), District Math Assessments (DMAs), writing prompts, and MCAS to establish how students are doing.

    1. Teachers reported that the BAS is used to place students into reading groups.

        a. Grade-level teachers (GLLs) enter BAS data in Aspen.

        b. Teachers can review grade-level BAS data during common planning time (CPT) and on early release days.

            i. However, CPT is only 30 minutes; early release is 2 hours once a month. And during the 2015-2016 school year early release time is to be devoted to Eureka math.

        c. School data teams review BAS results and place students into tiered levels. Data walls display assessment results by student.

    2. Principals said that they review BAS results on Aspen.

    3. GLLs discuss DMAs results during monthly meetings with the assistant superintendent. In 2015–2016, the use of DMAs is optional.

        a. With the introduction of the Eureka math program, teachers can use the assessments included with Eureka or continue to use DMAs.

        b. The Pre-K–12 Math Action Plan, developed by teachers from all grade levels, stated that DMAs are not consistent across grades.

    c.   District staff reported that the DMAs results are not always reliable at the district level because teachers create the assessments and the content may vary from classroom to classroom.

4.   Writing prompts are administered in varying formats at the elementary level.

    a.   With the piloting in 2015–2016 of Empowering Writers, teachers have the option of using the grade-level prompts or of using the prompts available through the program.

    b.   It is not clear whether principals receive the writing prompt results.

    c.   District administrators receive a summary of grade-level results on the writing prompts.

5.   Teachers reported reviewing their own students' MCAS results.

6.   The schools' data teams and Instructional Learning Teams also review MCAS results.

7.   Principals reported reviewing their schools' MCAS results.

B. At the middle school, teachers administer the DMAs and writing prompts and review MCAS results for their students. The middle school does not have data teams.

1.   Staff reported limited changes in DMAs at the middle school.

    a.   With the adoption of a new math text at the middle school, the district might move away from use of the DMAs and use the prompts available in the program.

2.   The middle school has discontinued the administration of common writing prompts and now uses individual teacher-developed writing prompts to measure students' writing skill.

    a.   Staff reported that administration of common writing prompts was not leading to improvements in student writing.

    b.   District staff reported that they get "anecdotal reports and samples" rather than grade-level writing results.

3.   Middle-school teachers reported reviewing MCAS results for their students.

    a.   The Instructional Leadership Team at the middle school analyzes MCAS results.

C. The high school administers the DMAs, writing prompts, common midterms and finals, and MCAS. The DMAs and the writing prompts may be part of the common midterms and finals.

1.   While the midterms and finals are common assessments, district staff reported that teachers do not correct them together by department.

2.   Department chairs reported discussing MCAS results, but emphasized that they rely more on the analysis of SAT, PSAT, and AP results.

D. The team did not find evidence of analysis of assessments at the district level.

E. Teachers at the middle- and high-school levels seem to prefer assessments developed at the teacher level to district and standardized tests.

1. Secondary teachers indicated that they find little value in quantitative results from assessments. For example, when asked in a focus group what they would change if they had a magic wand, teachers said, "[We would like] no more high stakes testing, no standardized testing."

2. Teachers at the middle and high schools place high value on assessments developed and analyzed at the teacher level. For example, when asked what assessments are valuable, a secondary teacher said, "Those that are teacher created and based on our students' needs where they're at."

Impact: Secondary teachers are placing appropriate emphasis on their own assessments of student progress, particularly frequent informal assessments. However, placing faith in teacher-developed assessments to the exclusion of standardized assessments can lead to incorrect or incomplete conclusions. Also, it might mean that teachers and administrators do not have valid and reliable assessment data about student achievement.

Without sufficient analysis of summary assessment data, administrators at the district and school levels have limited knowledge of how students are doing overall and so are unable to plan effectively to address their students' academic needs.

Recommendation

1. **The district should establish policies, structures, and practices for the continuous collection, analysis, and dissemination of student performance and other data sources, and ensure that these systems are uniform and integrated.**

   A. The superintendent, principals, and program leaders, in collaboration with teachers, should ensure that specific strategies, timelines, and clear expectations for the use of data are in place districtwide.

   1. The district should establish systematic, consistent processes to be followed by grade-level teacher teams, content-area departments, principals, and district administrators for the collection, analysis, and use of assessment data.

   2. The district should ensure that educators at all levels use data strategically to inform instruction, ongoing curriculum revision, program evaluation, and the educator evaluation system.

   B. The district should ensure that locally developed assessments such as the District Math Assessments and the district writing prompts and high school common exams are uniform

across classrooms and grades. Only when the assessments are uniform across grades, schools, and grade levels will the district and its staff have valid, reliable information to analyze and use to determine broad trends and challenges in student achievement and to design instruction to address students' needs.

C. Ongoing, targeted training in the collection, analysis, and use of student performance data should be provided for staff in each school, grade level, and subject area.

Recommended resources:

- The team recommends that the district administer ESE's *Assessment Literacy Self-Assessment and Gap Analysis Tool* (http://www.doe.mass.edu/edeval/ddm/webinar/PartI-GapAnalysis.pdf) to arrive at an understanding of where its educators stand overall on a continuum of assessment literacy. Analysis of the results of this assessment will guide the district in determining the professional development necessary to address the assessment literacy needs of its staff.

Benefits: By implementing this recommendation, district staff at all levels will have a firmer grasp of students' achievement and be able to use the information to make decisions about the instruction and the resources necessary to improve student achievement.

Human Resources and Professional Development

Contextual Background

The human resources function in Ludlow is staffed by an administrative assistant to human resources, who works with the superintendent in personnel management. Principals make hiring decisions for their own schools. The professional development function is staffed by the director of curriculum in the central office and by the school principals within their own schools.

Teachers have multiple opportunities to serve in formal and informal leadership roles and are willing to do so. Before the appointment of the current superintendent, teachers were not willing to serve in these roles. The current superintendent has fostered a culture of collaboration, and the teachers have responded by coming forward to take on these additional responsibilities.

Two challenges became evident during the review. The first is that professional development is rarely linked to district priorities, based on educators' needs identified in evaluations, or routinely evaluated for effectiveness. The second challenge is that perceived or actual limitations in the collective bargaining agreement with Ludlow's teachers cause confusion and frustration for principals and compromise their authority to make effective and strategic decisions about resources.

Strength Finding

1. **There are many opportunities in Ludlow for teachers to assume formal and informal leadership roles and positions.**

   A. Before the current superintendent assumed leadership four years ago, teachers were reluctant to take on additional roles.

   B. The current superintendent has created an environment of collaboration and has gained the trust and respect of the teachers, who are now more willing to take on leadership roles in their schools and in the district.

   C. There are several options open for teachers who wish to take on leadership roles.

      1. In the elementary schools, grade-level leaders (GLLs) have a full teaching load, lead common planning time, and conduct monthly meetings.

         a. GLLs receive a stipend.

      2. Teachers also participate in decision-making; for example, a number of teachers were on the task force that reviewed the math program in the district and selected the new mathematics program, Eureka Math.

      3. Teachers are trained and serve as mentors for new teachers in their first year of practice and in some instances beyond the induction year.

4. Teachers provide professional development (PD) for their peers on PD days.

5. Teachers attend workshops or presentations offsite, and are encouraged to share with their peers what they have learned.

6. Teachers serve as cooperating teachers for student teachers who come to the Ludlow schools as part of their teacher preparation program.

Impact: Opportunities for leadership may lead to job satisfaction and promote a highly professional environment for teachers. This may help Ludlow to retain good teachers as well as to contribute to improvements in student achievement.

Challenges and Areas for Growth

2. **There is no comprehensive and ongoing professional development plan based on district priorities, educator needs, student achievement data, or assessments of instructional practices in the district.**

   A. The district does not have a professional development committee.

   B. Interviewees said that there is no written Professional Development (PD) Plan for the current school year (2015-2016), although an administrator reported that there was one for the 2014–2015 school year. A document review indicated that the 2014–2015 PD Plan listed school-based activities on PD days.

   C. Teachers provide feedback about PD to - and request specific PD from - the director of curriculum, who surveys them each year.

   D. For the most part, PD offerings are determined without consideration for areas of need based on data or on educator evaluations. Teachers come forward to ask to participate in PD in areas of personal interest or need.

      1. However, the district provided professional development this year on new programs and initiatives, such as the new Eureka Math program, on the educator evaluation system, and the district's Baseline Edge program. Teachers are also participating in RETELL to earn their SEI endorsements.

   E. For the most part, principals provide PD for their own schools.

   F. PD offerings are not systematically evaluated for effectiveness.

      1. An administrator said that grade-level leaders talk to her about how effective the staff believes PD has been.

      2. A high school department chair said that the chairs know that PD has been effective in improving student achievement when the teachers tell them that it has been effective.

Impact: Because there is no overall districtwide assessment of the PD needs of teachers and of the effectiveness of PD offerings, the district is losing an opportunity to purposefully improve teachers' skills and to provide teachers with opportunities to reach their professional practice goals.

3. **Perceived or actual contractual limitations have confused and frustrated principals and burdened them with safety and coverage concerns.**

   A. In part for contractual reasons, the district does not have a teacher assignment strategy that results in the highest performing teachers instructing the students with the highest needs. Teacher assignments seem not to be made strategically and once made are changed infrequently.

      1. The teachers' collective bargaining agreement (CBA) states: "To the extent possible, commensurate with the best interest of the School System, changes in grades and assignments in the elementary schools and in the Major Area assignments in the secondary schools should be voluntary."

      2. Even when it would be contractually permissible, teacher assignments are not made strategically and rarely change.

         a. The superintendent said principals try not to "shuffle around staff" because they "get comfortable."

         b. The superintendent told the review team that principals assign teachers, acknowledging that there is little movement.

   B. The CBA contains language that some responsibilities beyond classroom duties are done "in conformance with past practice." Principals reported that because the absence of clarity about past practices they are sometimes unsure what they can and cannot ask of teachers.

      1. A review of the CBA indicated that past practice may involve: homeroom duty; supervision of study halls; preparing plan books, record books, seating plans, and report cards; attendance at faculty meetings; providing extra help after school; participation in open-house activities; supervision of bus duty for secondary teachers; lunch duty; supervision of corridors; attendance at assemblies; class attendance reports; supervision of the class during fire drills; recess supervision; assisting sick and injured children in emergency situations; and TEAM evaluations within the normal school day.

      2. A principal reported that because of the past practice language in the CBA, he/she is unable to require teachers to monitor the hallways to provide supervision during movement between classes, and this raises a safety concern.

      3. A principal said that because of teacher and student reporting/dismissal times, teachers sometimes arrive at school after students and leave the school before the students. For that

reason, the principal is left without coverage for about 15–30 minutes at the start and end of the school day and needs to pay paraprofessionals and monitors to provide coverage.

4. A principal reported that the absence of clarity in the CBA results in the principal and BCBA sometimes needing to provide coverage in the special education room during lunch.

   a. In that same school, teachers in that room do not do classroom duties during the day.

   b. If there is a shortage of paraprofessionals because someone is out or is substituting, there is nobody to provide coverage.

Impact: The absence of clarity about staff rights and responsibilities prevents principals from managing their resources efficiently and strategically to further district and school goals.

Recommendations

1. **The district should create an ongoing and comprehensive districtwide professional development (PD) plan. The plan should be aligned with the District and School Improvement Plans. Staff at all levels should be formally involved in the planning, oversight, and implementation of PD activities, programs, and opportunities.**

   A. A joint teacher-administrator committee should be created to oversee the design and delivery of PD programs and services in the district.

   B. The district should continue its practice of surveying teachers each year about their PD needs.

   C. Student assessment results, as well as data collected on teaching and learning as part of the educator evaluation system, should be considered when the PD plan is aligned to District and School Improvement Plans and when resources are allocated for PD.

      1. The district should consider using data collected as part of the educator evaluation system to provide differentiated PD for teachers.

   D. The district should systematically and frequently assess the effectiveness of PD programs and opportunities.

   Recommended resources:

   - The *Massachusetts Standards for Professional Development* (http://www.doe.mass.edu/pd/standards.pdf) describe, identify, and characterize what quality learning experiences should look like for educators.

   - *Quick Reference Guide: Educator Evaluation and Professional Development* (http://www.doe.mass.edu/edeval/resources/QRG-ProfessionalDevelopment.pdf) describes how educator evaluation and professional development can be used as mutually reinforcing systems to improve educator practice and student outcomes.

- *The Relationship between High Quality Professional Development and Educator Evaluation* (http://www.youtube.com/watch?v=R-aDxtEDncg&list=PLTuqmiQ9ssqt9EmOcWkDEHPKBqRvurebm&index=1) is a video presentation that includes examples from real districts.

- ESE's *Professional Development Self-Assessment Guidebook* (http://www.mass.gov/edu/docs/ese/accountability/dsac/professional-development-self-assessment-guide.pdf) provides tools for analyzing professional development offerings' alignment with the Massachusetts High-Quality Professional Development Standards, the Educator Evaluation Framework, and the Standards and Indicators of Effective Practice.

Benefits: Involving staff directly in planning, coordinating, and evaluating PD enhances teachers' sense of ownership, support, and active participation in the district's plan for attaining high levels of achievement for all students. Developing and implementing these plans will provide the district with comprehensive and appropriate professional development. Such comprehensive professional development allows for more in-depth learning for teachers, which will likely result in higher student achievement.

2. **District and school leaders should pursue agreement about language related to teachers' assignments and teachers' responsibilities in Articles II.F and IV.C in the collective bargaining agreement. They should develop a Memorandum of Understanding to record the agreed-upon meaning of the language and to capture the rights and responsibilities of teachers and principals.**

   A. The superintendent has promoted open communication and dialogue with the teachers' association leadership. Building on that relationship, he should invite the association to meet with district and school leaders to come to agreement about contractual language that speaks to teachers' assignments and to "past practice" related to teachers' responsibilities beyond their classroom duties.

      1. Principals should be included in the meeting to speak to the impact of current practice on student and staff safety, the general operation of the schools, and strategic and efficient use of resources for continuous improvement.

      2. Selected teachers or administrators with significant institutional memory should be included in the meeting to offer perspective into what the practices may have been over the years.

      3. Educators should discuss the ways in which the school, students, or practices may have changed since the practices were put into place.

   B. Each area in Articles II.F and IV.C should be discussed.

   C. Agreement should be reached on each item, and the language should delineate the rights and responsibilities of teachers and administrators in the particular circumstance. The language should be clear and specific so that all district staff understand what is expected of them and what they can expect of others in each instance.

D. The parties should develop a Memorandum of Understanding (MOU) to record the agreed-upon meaning of the language and to detail the rights and responsibilities of teachers and principals.

E. The district should clearly communicate to all educators the rights and responsibilities detailed in the MOU.

Recommended resource:

- ESE annually compiles all Massachusetts districts' teacher collective bargaining agreements (http://educatorcontracts.doemass.org/; after entering database, select districts from next page). This could be a useful resource as the district seeks to clarify language in its CBA.

Benefits: Implementing this recommendation will clarify educators' rights and responsibilities and enable principals to manage their resources more strategically and more efficiently to accomplish the district's mission and goals.

Student Support

Strength Finding

1. **Individual schools in Ludlow have a process in place to support struggling students. The process varies across the district.**

    A. Interviews and a document review indicated that schools have developed models of tiered interventions to support students and the process differs from school to school. In general, Tiers 1, 2, and 3 are in place to support all students in ELA and math.

        1. Tier 1 instruction is provided through "the daily delivery of the curriculum with expected fidelity of implementation."

            a. The LPS (Ludlow Public Schools) Level One Problem Solving document provided to the team states: "LPS believes that when educators use best practices in teaching, use curricular materials and methods as intended, and differentiate instruction, they are providing Tier 1 services and using Level 1 problem solving."

        2. Tier 2 provides additional support services to struggling students.

        3. Tier 3 consists of an increased level of services, which may include a daily guided reading lesson with the general education teacher, small-group teaching of a specific concept, or in the case of high school students - changing course levels.

        4. An administrator said that Tier 3 "is not necessarily special education; it resembles more of a pull-out strategy."

        5. The distinction between Tiers 2 and 3 was not clear to the review team.

    B. In addition to general education classes, Tier 2 and Tier 3 interventions are offered.

        1. Counselors and administrators told the review team that the tiered system is fluid; students go in and out of classes depending on assessments and identified needs.

        2. These meet 2-5 times per week at the middle and high schools.

        3. Interviewees told the team that instructors of tiered interventions work closely with ELA and math teachers.

    C. Service teams in some schools help ensure that students receive appropriate interventions.

        1. At the elementary level, service teams composed of a facilitator, administrator, counselor, and teachers meet weekly to analyze BAS data and informal assessments and identify a plan of tiered interventions.

2. At the middle school, teachers use SRI as well as teacher-developed assessments to identify those students who need Tier 2 or Tier 3 interventions. Interviewees said that students in Tier 3 are scheduled for an additional ELA or math class with no more than 8 students.

3. At the high school, guidance and adjustment counselors, administrators, teachers, and the school resource officer meet weekly to review student data and identify students in need of additional support in ELA and math.

4. An administrator said that service teams work well at the elementary level and that it has been more of a struggle to establish them at the secondary level. She noted: "When someone is struggling, that child's name must be brought to the service team---that's our non-negotiable."

D. The district does not have a specified coordinator with primary responsibility for oversight and coordination of support services.

Impact: When schools have established systems to monitor students' progress and respond to their needs, they support students' wellbeing and academic success.

Financial and Asset Management

Contextual Background

Spending in the district is 19.6 percent above required net school spending (NSS) and the percentage above NSS increased in both fiscal years 2014 and 2015. Despite this more than adequate funding level, during the onsite review it was not clear to the team how resource allocation directly supports district and school goals. For example, teachers told the review team that they need more staff, textbooks, and other instructional materials. A review of actual spending in end-of-year reports confirmed that spending on textbooks and instructional materials has been decreasing while staffing levels have increased and exceeded state averages. In addition, performance data and improvement plans are not sufficiently taken into consideration during the budget process.

Challenges and Areas for Growth

1. **District and school goals and performance data receive little consideration in the development of the annual budget.**

    A. In interviews, most principals did not make a connection between their School Improvement Plans, performance data, and building their budgets.

        1. One principal stated that principals make budget requests based on their needs, but they later receive budget projections from the business manager which do not reflect their requests; this principal noted that principals have no additional input into the budget process.

    B. Business office administrators do not regularly attend district budget meetings and are not familiar with either the District Improvement Plan or School Improvement Plans.

        1. The business manager, who is a consultant and present in the district one day per week, stated that he is not part of the district's administrative team and does not attend meetings. He noted that he receives "communications" from the meetings.

            a. The business manager stated that he is not aware of the content of the District and School Improvement Plans.

        2. The assistant business manager, who is a full-time employee, reported that she has never seen an improvement plan.

Impact: Without consideration of student performance data and district and school goals in its budget development process, the district has lost the opportunity to allocate resources in a manner targeted to improve student achievement.

2. The district's budget documents are not complete and are not shared with all constituents.

    A. The fiscal year 2015 and fiscal year 2016 budget documents do not include all sources of funding revenue and corresponding expenses.

        1. Detailed revenue and expenditures from grants and revolving funds are not included in the budget document, nor are they shared with the school committee, town officials, or the public.

            a. The budget document contains one line for total estimated grant revenue, one line for estimated revolving account revenue, and one combined figure for total estimated expenses for grants and revolving accounts.

            b. A town official stated that when he asks whether the district is spending down revolving accounts, he does not receive answers.

    B. The fiscal year 2015 and fiscal year 2016 budget documents do not include any staffing data.

        1. The budget documents contain only one-line totals for building salaries such as "Teacher Salary," "Prof Salary", etc.

        2. There is a staff list with salary information and samples of the lists were provided to the review team. However, this information is not shared with administrators or committees during the budget process. Instead the list is used for internal payroll reconciliation.

        3. Salaries and wages accounted for 75 percent of the district's total expenses in fiscal year 2015. Similar data for fiscal year 2016 were not available to the review team.

    C. Budget documents and financial information are not readily accessible to constituents.

        1. At the time of the review, the only financial information on the district's website was the superintendent's fiscal year 2016 budget presentation dated April 7, 2015.

            a. The fiscal year 2016 budget presentation is a collection of 14 Power Point slides primarily outlining the proposed budget changes from the previous year.

        2. There is no financial information on the district's business office web page.

            a. The web page lists business office personnel with contact information.

        3. School department budget documents are not made available to the public before the town meeting.

            a. A town official stated that she is not aware of any school budget documents that are made available to the public.

Impact: By not providing comprehensive budget documents and financial information to its constituents, the district is missing an opportunity to share responsibility for improved student achievement and to strengthen the trust and confidence needed for continued financial support.

3. **Although district spending substantially exceeds required net school spending, it was not clear to the review team how resource allocations directly support continuous improvement.**

   A. Spending in the district is 19.6 percent above required net school spending (NSS) and the percentage above NSS increased in both fiscal years 2014 and 2015.

   B. District and school goals and performance data receive little consideration in the development of the annual budget (see the first Financial and Asset Management Challenge finding above)**.**

   C. A review of actual spending in end-of-year reports confirmed that spending for textbooks and instructional materials has been decreasing while staffing levels have increased and exceeded state averages.

   D. Funds have not been available to purchase textbooks and resources at some grade levels.

      1. A district administrator stated that the district has not purchased new social studies books since 1986.

      2. An administrator said that for a number of years, elementary- and middle-school teachers have taught math without a program or text.

      3. The district did not purchase the workbooks for the new math program, so teachers must copy and share materials.

Impact: Without close connection between district and school goals and resource allocation, the budget does not clearly reflect consideration of students' needs or adequately support implementation of improvement planning.

Recommendations

1. **District and school goals as well as student performance data should be integral factors in the development of the district's annual budget.**

   A. School principals and other administrators should participate in budget development, making the needs in their schools or other areas of responsibility known.

      1. The administrative team should develop budget priorities and be involved in budget deliberations.

   B. Budget development should include a careful look at how current resource allocations directly support continuous improvement and what reallocations may be needed to implement the District Improvement and School Improvement Plans.

1. Resources should be allocated in the budget through consideration of students' needs and the strengthened district and school improvement plans (see Leadership and Governance recommendation above).

C. The budget document should communicate district and school goals and objectives - and the ways in which the budget is aligned to them - to all stakeholders.

1. The budget narrative should include key aspects of the District Improvement Plan (DIP) and specific statements about resources provided in the DIP for initiatives that have financial implications, for example, staffing changes, changes in class sizes, or new professional development.

2. As it looks at current allocations, the district should rigorously review their effectiveness, and be prepared to consider reallocations for higher priority and more effective initiatives.

Recommended resources:

- The Rennie Center's *Smart School Budgeting* (http://www.renniecenter.org/topics/smart_school_budgeting.html; direct link: http://www.renniecenter.org/research/SmartSchoolBudgeting.pdf) is a summary of existing resources on school finance, budgeting, and reallocation.

- In *Spending Money Wisely: Getting the Most from School District Budgets* (http://dmcouncil.org/spending-money-wisely-ebook), authors Nathan Levenson, Karla Baehr, James C. Smith, and Claire Sullivan of The District Management Council identify and discuss the top ten opportunities for districts to realign resources and free up funds to support strategic priorities. Drawing on the wisdom of leading thinkers, district leaders, and education researchers from across the country, the authors gathered a long list of opportunities for resource reallocation. To distill these down to the ten most high-impact opportunities, each opportunity was assessed based on its financial benefit, its impact on student achievement, its political feasibility, and its likelihood of success relative to the complexity of implementation.

- *Smarter School Spending for Student Success* (http://smarterschoolspending.org/home) provides free processes and tools to help districts use their resources to improve student achievement.

Benefits from implementing these recommendations include having a more inclusive budget process, one that will bring together all administrators who have identified the resources needed to meet the goals in their improvement plans. Budgets that specifically address those goals will more effectively enable the district to improve academic performance for all students. Implementing this recommendation will mean a clear alignment between district and school goals and the budget and will ensure that district spending supports strategic priorities.

2. District administrators should create budget documents that are comprehensive, transparent, and that satisfy the needs of the school committee and the town.

   A. The district's annual budget should include all sources of revenue, specifically grants and revolving funds.

   B. Detailed staffing data should be included in budget documents shared with the school committee and town officials.

   C. Budget documents and other district financial information should be included on the district's business office web page.

   D. The district should consider producing a condensed, informative budget document that is available to town residents before town meeting.

   1. A budget document or booklet of a few pages should outline past, present, and proposed budget allocations for administration, school, and department-level functions such as special education.

   2. A narrative should be included to explain the rationale for budget requests.

   3. The budget booklet should also contain anticipated revenue from all sources and corresponding expenses.

   4. School-related expenses that are paid from town funds, such as health insurance and retirement, should also be included.

Benefits from implementing this recommendation will include the development of complete and accessible budget documents that will contribute to a better understanding of, and appreciation for, the district's current and future financial position. In addition, the district will enhance its commitment to transparency by sharing this financial information with all of its constituents.

Appendix A: Review Team, Activities, Schedule, Site Visit

Review Team Members

The review was conducted from October 26–29, 2015, by the following team of independent ESE consultants.

1. Dr. James Caradonio, leadership and governance

2. Dr. Richard Silverman, curriculum and instruction

3. Patricia Williams, assessment, *review team coordinator*

4. Ann Marie Stoica, human resources and professional development

5. Willette Johnson, student support

6. Marge Foster, financial and asset management

District Review Activities

The following activities were conducted during the review:

The team conducted interviews with the following financial personnel: the business manager and the assistant business manager.

The team conducted interviews with the following members of the school committee: the assistant chair and three members.

The review team conducted interviews with the following representatives of the teachers' association: the president and a representative.

The team conducted interviews/focus groups with the following central office administrators: the superintendent, the curriculum director, and the special education director.

The team visited the following schools: East Street Elementary (Pre-K–1), Chapin Street Elementary (grades 2–3), Veterans Park Elementary (grades 4–5), Baird Middle (grades 6–8), and Ludlow Senior High (grades 9–12).

During school visits, the team conducted interviews with 5 principals and 3 focus groups with 27 elementary-school teachers, 21 middle-school teachers, and 49 high-school teachers.

The team observed 66 classes in the district: 28 at the high school, 15 at the middle school, and 23 at the 3 elementary schools.

The review team analyzed multiple data sets and reviewed numerous documents before and during the site visit, including:

o Student and school performance data, including achievement and growth, enrollment, graduation, dropout, retention, suspension, and attendance rates.

o Data on the district's staffing and finances.

o Published educational reports on the district by ESE, the New England Association of Schools and Colleges (NEASC), and the former Office of Educational Quality and Accountability (EQA).

o District documents such as district and school improvement plans, school committee policies, curriculum documents, summaries of student assessments, job descriptions, collective bargaining agreements, evaluation tools for staff, handbooks, school schedules, and the district's end-of-year financial reports.

o All completed program and administrator evaluations, and a random selection of completed teacher evaluations.

Site Visit Schedule

Monday October 26, 2015	Tuesday October 27, 2015	Wednesday October 28, 2015	Thursday October 29, 2015
Orientation with district leaders and principals; interviews with district staff and principals; document reviews; review of personnel files, interview with teachers' association.	Interviews with district staff, principals, school committee members, and town officials; review of personnel files; student focus group, teacher focus groups; parent focus group; and visits to Ludlow Senior High School and Baird Middle School for classroom observations.	Interviews with district staff, principals, school level leaders; visits to East Street, Chapin, and Veterans Park elementary schools for classroom observations.	Interviews with school leaders; district review team meeting; visits to Veterans Park Elementary, Baird Middle School, and Ludlow Senior High School for classroom observations; emerging themes meeting with district leaders and principals.

Appendix B: Enrollment, Performance, Expenditures

Table B1a: Ludlow Public Schools

2014–2015 Student Enrollment by Race/Ethnicity

Student Group	District	Percent of Total	State	Percent of Total
African-American	46	1.7%	83,556	8.7%
Asian	11	0.4%	60,050	6.3%
Hispanic	222	8.2%	171,036	17.9%
Native American	5	0.2%	2,238	0.2%
White	2,368	87.2%	60,8453	63.7%
Native Hawaiian	5	0.2%	930	0.1%
Multi-Race, Non-Hispanic	59	2.2%	29,581	3.1%
All Students	2,716	100.0%	955,844	100.0%

Note: As of October 1, 2014

Table B1b: Ludlow Public Schools

2014–2015 Student Enrollment by High Needs Populations

Student Groups	District			State		
	N	Percent of High Needs	Percent of District	N	Percent of High Needs	Percent of State
Students w/ disabilities	438	45.9%	16.0%	165,060	40.4%	17.1%
Econ. Disad.	611	64.0%	22.5%	251,026	61.5%	26.3%
ELLs and Former ELLs	54	5.7%	2.0%	81,146	19.9%	8.5%
All high needs students	955	100.0%	34.9%	408,200	100.0%	42.2%

Notes: As of October 1, 2014. District and state numbers and percentages for students with disabilities and high needs students are calculated including students in out-of-district placements. Total district enrollment including students in out-of-district placement is 2,740; total state enrollment including students in out-of-district placement is 966,391.

Table B2a: Ludlow Public Schools
English Language Arts Performance, 2012–2015

Grade and Measure		Number Included (2015)	Spring MCAS Year					Gains and Declines	
			2012	2013	2014	2015	State (2015)	4-Year Trend	2-Year Trend
3	CPI	165	80.8	82.6	83.1	80	83.4	-0.8	-3.1
	P+	165	52.0%	52.0%	55.0%	51.0%	60.0%	-1.0%	-4.0%
4	CPI	203	77.8	79.1	73.2	80	78.5	2.2	6.8
	P+	203	48.0%	52.0%	44.0%	56.0%	53.0%	8.0%	12.0%
	SGP	196	56	56	46.5	52.5	50	-3.5	6
5	CPI	216	79.6	80.5	79.3	76.3	87.3	-3.3	-3
	P+	216	57.0%	55.0%	52.0%	49.0%	71.0%	-8.0%	-3.0%
	SGP	204	45.5	50	31	30	50	-15.5	-1
6	CPI	233	85.6	82.8	86.2	85.6	86.6	0	-0.6
	P+	233	68.0%	63.0%	65.0%	68.0%	71.0%	0.0%	3.0%
	SGP	224	51	52	50	53	50	2	3
7	CPI	196	85.7	87.9	87.8	86.5	87	0.8	-1.3
	P+	196	67.0%	69.0%	73.0%	66.0%	70.0%	-1.0%	-7.0%
	SGP	186	45	38	51	39.5	50	-5.5	-11.5
8	CPI	218	89.1	88.6	89	89.2	91.4	0.1	0.2
	P+	218	75.0%	78.0%	76.0%	75.0%	80.0%	0.0%	-1.0%
	SGP	210	43	46	36	37.5	50	-5.5	1.5
10	CPI	229	97.5	99	98.3	96.2	96.7	-1.3	-2.1
	P+	229	93.0%	94.0%	94.0%	90.0%	91.0%	-3.0%	-4.0%
	SGP	193	50	59	49.5	53	51	3	3.5
All	CPI	1,460	85.6	85.9	85.2	85.1	--	-0.5	-0.1
	P+	1,460	66.0%	66.0%	66.0%	66.0%	--	0.0%	0.0%
	SGP	1,213	48	50	44	44	50	-4	0

Notes: The number of students included in CPI and percent *Proficient* or *Advanced* (P+) calculations may differ from the number of students included in median SGP calculations. A median SGP is not calculated for students in grade 3 because they are participating in MCAS tests for the first time.

Table B2b: Ludlow Public Schools
Mathematics Performance, 2012–2015

Grade and Measure		Number Included (2015)	Spring MCAS Year					Gains and Declines	
			2012	2013	2014	2015	State (2015)	4-Year Trend	2-Year Trend
3	CPI	165	75.7	82.2	84.9	82.3	85.4	6.6	-2.6
	P+	165	50.0%	62.0%	68.0%	65.0%	70.0%	15.0%	-3.0%
4	CPI	203	77.2	74.7	72.9	81.5	77.2	4.3	8.6
	P+	203	44.0%	42.0%	37.0%	54.0%	47.0%	10.0%	17.0%
	SGP	196	47.5	54	41	59	49	11.5	18
5	CPI	216	69.2	78.3	76.6	72.7	83.6	3.5	-3.9
	P+	216	41.0%	55.0%	52.0%	49.0%	67.0%	8.0%	-3.0%
	SGP	207	33	51	45	41	50	8	-4
6	CPI	234	83.7	80.8	87.1	86.2	81.5	2.5	-0.9
	P+	234	68.0%	62.0%	72.0%	72.0%	62.0%	4.0%	0.0%
	SGP	223	78.5	79	78	83	50	4.5	5
7	CPI	198	76.8	74.5	66.9	74.7	73	-2.1	7.8
	P+	198	56.0%	53.0%	42.0%	53.0%	51.0%	-3.0%	11.0%
	SGP	188	58	50	39	36	51	-22	-3
8	CPI	216	76.7	73.9	67	69.7	78.7	-7	2.7
	P+	216	54.0%	52.0%	39.0%	46.0%	60.0%	-8.0%	7.0%
	SGP	208	41	43	26	36.5	51	-4.5	10.5
10	CPI	232	90.9	94.6	94.2	90.7	89.9	-0.2	-3.5
	P+	232	81.0%	86.0%	87.0%	81.0%	79.0%	0.0%	-6.0%
	SGP	194	53	53	56	57	50	4	1
All	CPI	1,464	79	79.7	78	79.8	0	0.8	1.8
	P+	1,464	57.0%	59.0%	56.0%	60.0%	0.0%	3.0%	4.0%
	SGP	1,216	52	54	46	52	50	0	6

Notes: The number of students included in CPI and percent *Proficient* or *Advanced* (P+) calculations may differ from the number of students included in median SGP calculations. A median SGP is not calculated for students in grade 3 because they are participating in MCAS tests for the first time.

Table B2c: Ludlow Public Schools
Science and Technology/Engineering Performance, 2012–2015

Grade and Measure		Number Included (2015)	Spring MCAS Year					Gains and Declines	
			2012	2013	2014	2015	State (2015)	4-Year Trend	2-Year Trend
5	CPI	216	66.7	76.1	74.1	75.2	78.2	8.5	1.1
	P+	216	26.0%	42.0%	43.0%	44.0%	51.0%	18.0%	1.0%
8	CPI	215	64.6	67.7	70.7	72.8	72.4	8.2	2.1
	P+	215	27.0%	31.0%	37.0%	41.0%	42.0%	14.0%	4.0%
10	CPI	225	81	89.8	92	86.3	88.2	5.3	-5.7
	P+	225	53.0%	71.0%	78.0%	68.0%	72.0%	15.0%	-10.0%
All	CPI	656	71.5	77.5	78.3	78.2	79.4	6.7	-0.1
	P+	656	37.0%	48.0%	52.0%	51.0%	54.0%	14.0%	-1.0%

Notes: P+ = percent *Proficient* or *Advanced*. Students participate in Science and Technology/ Engineering (STE) MCAS tests in grades 5, 8, and 10 only. Median SGPs are not calculated for STE.

Table B3a: Ludlow Public Schools
English Language Arts (All Grades)
Performance for Selected Subgroups Compared to State, 2012–2015

Group and Measure			Number Included (2015)	Spring MCAS Year				Gains and Declines	
				2012	2013	2014	2015	4-Year Trend	2-Year Trend
High Needs	District	CPI	550	80.1	75.5	75.4	74.6	-5.5	-0.8
		P+	550	57.0%	48.0%	48.0%	46.0%	-11.0%	-2.0%
		SGP	439	45	48	42	38	-7	-4
	State	CPI	93,277	76.5	76.8	77.1	79.5	3	2.4
		P+	93,277	48.0%	48.0%	50.0%	55.0%	7.0%	5.0%
		SGP	68,746	46	47	47	47	1	0
Econ. Disad.	District	CPI	378	--	--	--	80.3	--	--
		P+	378	--	--	--	56.0%	--	--
		SGP	297	--	--	--	39	--	--
	State	CPI	63,124	--	--	--	80.9	80.9	80.9
		P+	63,124	--	--	--	59.0%	59.0%	59.0%
		SGP	47,064	--	--	--	47	47	47
Students w/ disabilities	District	CPI	239	64	59.6	60	61.6	-2.4	1.6
		P+	239	27.0%	23.0%	24.0%	24.0%	-3.0%	0.0%
		SGP	195	42	45	41	39	-3	-2
	State	CPI	39,117	67.3	66.8	66.6	71.6	4.3	5
		P+	39,117	31.0%	30.0%	31.0%	39.0%	8.0%	8.0%
		SGP	28,234	43	43	43	44	1	1
English language learners or Former ELLs	District	CPI	41	52.4	63.6	68.6	51.8	-0.6	-16.8
		P+	41	10.0%	27.0%	35.0%	20.0%	10.0%	-15.0%
		SGP	31	49	63.5	67	27	-22	-40
	State	CPI	18,541	66.2	67.4	67.8	70.1	3.9	2.3
		P+	18,541	34.0%	35.0%	36.0%	41.0%	7.0%	5.0%
		SGP	11,589	51	53	54	54	3	0
All students	District	CPI	1,460	85.6	85.9	85.2	85.1	-0.5	-0.1
		P+	1,460	66.0%	66.0%	66.0%	66.0%	0.0%	0.0%
		SGP	1,213	48	50	44	44	-4	0
	State	CPI	216,396	86.7	86.8	86.7	89.3	2.6	2.6
		P+	216,396	69.0%	69.0%	69.0%	75.0%	6.0%	6.0%
		SGP	172,652	50	51	50	50	0	0

Notes: The number of students included in CPI and percent *Proficient* or *Advanced* (P+) calculations may differ from the number of students included in median SGP calculation. State figures are provided for comparison purposes only and do not represent the standard that a particular group is expected to meet.

Table B3b: Ludlow Public Schools
Mathematics (All Grades)
Performance for Selected Subgroups Compared to State, 2012–2015

Group and Measure			Number Included (2015)	Spring MCAS Year				Gains and Declines	
				2012	2013	2014	2015	4-Year Trend	2-Year Trend
High Needs	District	CPI	555	72.4	66.4	66.4	66.1	-6.3	-0.3
		P+	555	47.0%	40.0%	39.0%	40.0%	-7.0%	1.0%
		SGP	443	46	46.5	44.5	43	-3	-1.5
	State	CPI	93,295	67	68.6	68.4	70.2	3.2	1.8
		P+	93,295	37.0%	40.0%	40.0%	43.0%	6.0%	3.0%
		SGP	69,106	46	46	47	47	1	0
Economically Disadvantaged	District	CPI	381	--	--	--	73.8	73.8	73.8
		P+	381	--	--	--	50.0%	50.0%	50.0%
		SGP	299	--	--	--	44	44	44
	State	CPI	63,076	--	--	--	71.9	71.9	71.9
		P+	63,076	--	--	--	47.0%	47.0%	47.0%
		SGP	47,295	--	--	--	46	46	46
Students w/ disabilities	District	CPI	240	52.3	47.7	49.3	46.4	-5.9	-2.9
		P+	240	18.0%	16.0%	18.0%	14.0%	-4.0%	-4.0%
		SGP	194	37	37	47.5	36	-1	-11.5
	State	CPI	39,181	56.9	57.4	57.1	60	3.1	2.9
		P+	39,181	21.0%	22.0%	22.0%	27.0%	6.0%	5.0%
		SGP	28,451	43	42	43	44	1	1
English language learners or Former ELLs	District	CPI	42	49.2	58.8	60.2	56	6.8	-4.2
		P+	42	16.0%	26.0%	30.0%	31.0%	15.0%	1.0%
		SGP	33	68	59	49.5	40	-28	-9.5
	State	CPI	18,625	61.6	63.9	63.8	64.4	2.8	0.6
		P+	18,625	32.0%	35.0%	36.0%	37.0%	5.0%	1.0%
		SGP	11,735	52	53	52	50	-2	-2
All students	District	CPI	1,464	79	79.7	78	79.8	0.8	1.8
		P+	1,464	57.0%	59.0%	56.0%	60.0%	3.0%	4.0%
		SGP	1,216	52	54	46	52	0	6
	State	CPI	216,363	79.9	80.8	80.3	83.1	3.2	2.8
		P+	216,363	59.0%	61.0%	60.0%	66.0%	7.0%	6.0%
		SGP	173,217	50	51	50	50	0	0

Notes: The number of students included in CPI and percent *Proficient* or *Advanced* (P+) calculations may differ from the number of students included in median SGP calculation. State figures are provided for comparison purposes only and do not represent the standard that a particular group is expected to meet.

Table B3c: Ludlow Public Schools
Science and Technology/Engineering (All Grades)
Performance for Selected Subgroups Compared to State, 2012–2015

Group and Measure			Number Included (2015)	Spring MCAS Year				Gains and Declines	
				2012	2013	2014	2015	4-Year Trend	2-Year Trend
High Needs	District	CPI	258	66.4	66.3	68.7	65.5	-0.9	-3.2
		P+	258	29.0%	30.0%	37.0%	32.0%	3.0%	-5.0%
	State	CPI	91,013	65	66.4	67.3	66.3	1.3	-1
		P+	91,013	31.0%	31.0%	33.0%	32.0%	1.0%	-1.0%
Econ. Disadv.	District	CPI	172	0	0	0	71.2	71.2	71.2
		P+	172	0.0%	0.0%	0.0%	39.0%	39.0%	39.0%
	State	CPI	62,345	--	--	--	67.1	67.1	67.1
		P+	62,345	--	--	--	33.0%	33.0%	33.0%
Students w/ disabilities	District	CPI	126	54.5	53.6	56	52	-2.5	-4
		P+	126	13.0%	13.0%	18.0%	14.0%	1.0%	-4.0%
	State	CPI	38,520	58.7	59.8	60.1	60.2	1.5	0.1
		P+	38,520	20.0%	20.0%	22.0%	22.0%	2.0%	0.0%
English language learners or Former ELLs	District	CPI	18	0	0	59.4	47.2	47.2	-12.2
		P+	18	0.0%	0.0%	25.0%	22.0%	22.0%	-3.0%
	State	CPI	17,516	51.4	54	54	53.9	2.5	-0.1
		P+	17,516	17.0%	19.0%	18.0%	18.0%	1.0%	0.0%
All students	District	CPI	656	71.5	77.5	78.3	78.2	6.7	-0.1
		P+	656	37.0%	48.0%	52.0%	51.0%	14.0%	-1.0%
	State	CPI	210,454	78.6	79	79.6	79.4	0.8	-0.2
		P+	210,454	54.0%	53.0%	55.0%	54.0%	0.0%	-1.0%

Notes: Median SGPs are not calculated for Science and Technology/ Engineering (STE). State figures are provided for comparison purposes only and do not represent the standard that a particular group is expected to meet.

Table B4: Ludlow Public Schools

Annual Grade 9-12 Drop-Out Rates, 2011–2014

Group	School Year Ending				Change 2011–2014		Change 2013–2014		State (2014)
	2011	2012	2013	2014	Percentage Points	Percent Change	Percentage Points	Percent Change	
High Needs	1.1%	2.5%	2.6%	2.1%	1.0	90.9%	-0.5	-19.2%	3.4%
Low Income	1.3%	2.4%	3.0%	2.7%	1.4	107.7%	-0.3	-10.0%	3.6%
Students w/ disabilities	1.6%	2.4%	3.1%	3.2%	1.6	100.0%	0.1	3.2%	3.4%
ELL	0.0%	0%	--	0%	--	--	--	--	6.2%
All students	0.8%	1.9%	2.0%	0.9%	0.1	12.5%	-1.1	-55.0%	2.0%

Notes: The annual drop-out rate is calculated by dividing the number of students who drop out over a one-year period by the October 1 grade 9–12 enrollment, multiplied by 100. Drop outs are those students who dropped out of school between July 1 and June 30 of a given year and who did not return to school, graduate, or receive a high school equivalency by the following October 1. Drop-out rates have been rounded; percent change is based on unrounded numbers.

Table B5: Ludlow Public Schools

Attendance Rates, 2012–2015

Group	School Year Ending				Change 2012–2015		Change 2014–2015		State (2015)
	2012	2013	2014	2015	Percentage Points	Percent Change	Percentage Points	Percent Change	
All students	95.1%	94.7%	94.7%	94.5%	-0.6	-0.6%	-0.2	-0.2%	94.7

Notes: The attendance rate is calculated by dividing the total number of days students attended school by the total number of days students were enrolled in a particular school year. A student's attendance rate is counted toward any district the student attended. In addition, district attendance rates included students who were out placed in public collaborative or private alternative schools/programs at public expense. Attendance rates have been rounded; percent change is based on unrounded numbers.

Table B6: Ludlow Public Schools

Expenditures, Chapter 70 State Aid, and Net School Spending Fiscal Years 2012–2014

	FY12		FY13		FY14	
	Estimated	Actual	Estimated	Actual	Estimated	Actual
Expenditures						
From local appropriations for schools:						
By school committee	$25,242,722	$25,242,721	$25,708,208	$25,708,207	$26,324,920	$26,333,684
By municipality	$9,812,722	$14,862,065	$7,994,826	$7,815,451	$8,485,193	$8,292,415
Total from local appropriations	$35,055,444	$40,104,785	$33,703,034	$33,523,659	$34,810,113	$34,626,099
From revolving funds and grants	--	$4,823,698	--	$3,919,267	--	$3,909,038
Total expenditures	--	$44,928,483	--	$37,442,926	--	$38,535,136
Chapter 70 aid to education program						
Chapter 70 state aid*	--	$13,097,378	--	$13,211,578	--	$13,282,703
Required local contribution	--	$13,801,952	--	$14,243,896	--	$14,764,702
Required net school spending**	--	$26,899,330	--	$27,455,474	--	$28,047,405
Actual net school spending	--	$30,963,982	--	$31,206,505	--	$32,286,034
Over/under required ($)	--	$4,064,652	--	$3,751,031	--	$4,238,629
Over/under required (%)	--	15.1	--	13.7	--	15.1

*Chapter 70 state aid funds are deposited in the local general fund and spent as local appropriations.

**Required net school spending is the total of Chapter 70 aid and required local contribution. Net school spending includes only expenditures from local appropriations, not revolving funds and grants. It includes expenditures for most administration, instruction, operations, and out-of-district tuitions. It does not include transportation, school lunches, debt, or capital.

Sources: FY12, FY13, and FY14 District End-of-Year Reports, Chapter 70 Program information on ESE website

Data retrieved 11/20/15

Table B7: Ludlow Public Schools
Expenditures Per In-District Pupil
Fiscal Years 2012–2014

Expenditure Category	2012	2013	2014
Administration	$502	$474	$462
Instructional leadership (district and school)	$747	$746	$802
Teachers	$4,362	$4,346	$4,623
Other teaching services	$934	$954	$1,138
Professional development	$119	$138	$135
Instructional materials, equipment and technology	$256	$377	$344
Guidance, counseling and testing services	$428	$419	$416
Pupil services	$1,268	$1,270	$1,288
Operations and maintenance	$775	$809	$868
Insurance, retirement and other fixed costs	$2,454	$2,416	$2,626
Total expenditures per in-district pupil	$11,844	$11,950	$12,702

Sources: Per-pupil expenditure reports on ESE website

Note: Any discrepancy between expenditures and total is because of rounding.

Appendix C: Instructional Inventory

Focus Area #1: Learning Objectives & Instruction		Insufficient	Minimal	Moderate	Strong	Avg Number of points
		(0)	(1)	(2)	(3)	(0 to 3)
1. The teacher demonstrates knowledge of subject matter and content.	ES	1	0	9	13	2.5
	MS	0	0	4	11	2.7
	HS	0	5	16	7	2.1
	Total #	1	5	29	31	2.4
	Total %	2%	8%	44%	47%	
2. The teacher provides and refers to clear learning objective(s) in the lesson.	ES	8	3	6	6	1.4
	MS	1	6	2	6	1.9
	HS	7	4	11	6	1.6
	Total #	16	13	19	18	1.6
	Total %	24%	20%	29%	27%	
3. The teacher implements a lesson that reflects high expectations aligned to the learning objective (s).	ES	7	3	7	6	1.5
	MS	0	4	5	6	2.1
	HS	4	9	12	3	1.5
	Total #	11	16	24	15	1.7
	Total %	17%	24%	22%	43%	
4. The teacher uses appropriate instructional strategies well matched to the learning objective(s).	ES	3	5	5	10	2.0
	MS	1	2	7	5	2.1
	HS	6	7	9	6	1.5
	Total #	10	14	21	21	1.8
	Total %	15%	21%	32%	32%	
Total Score For Focus Area #1	ES					7.4
	MS					8.8
	HS					6.7
	Total					7.4

Focus Area #2: Student Engagement & Critical Thinking		Insufficient	Minimal	Moderate	Strong	Avg Number of points
		(0)	(1)	(2)	(3)	(0 to 3)
5. Students are motivated and engaged in the lesson.	ES	1	1	8	13	2.4
	MS	0	1	8	6	2.3
	HS	0	12	11	5	1.8
	Total #					2.1
	Total %	2%	21%	41%	36%	
6. The teacher facilitates tasks that encourage students to develop and engage in critical thinking.	ES	3	5	6	9	1.9
	MS	0	3	8	4	2.1
	HS	4	9	11	4	1.5
	Total #	7	17	25	17	1.8
	Total %	11%	26%	38%	26%	
7. Students assume responsibility for their own learning whether individually, in pairs, or in groups.	ES	3	3	5	12	2.1
	MS	0	4	7	4	2.0
	HS	4	12	9	3	1.4
	Total #	7	19	21	19	1.8
	Total %	11%	29%	32%	29%	
Total Score For Focus Area #2	ES					6.5
	MS					6.4
	HS					4.7
	Total					5.7

Focus Area #3: Differentiated Instruction & Classroom Culture		Insufficient	Minimal	Moderate	Strong	Avg Number of points
		(0)	(1)	(2)	(3)	(0 to 3)
8. The teacher appropriately differentiates instruction so the lesson content is accessible for all learners.	ES	7	7	3	6	1.3
	MS	8	3	3	1	0.8
	HS	13	8	7	0	0.8
	Total #	28	18	13	7	1.0
	Total %	42%	27%	20%	11%	
9. The teacher uses appropriate resources aligned to students' diverse learning needs. (e.g., technology, manipulatives, support personnel).	ES	5	3	4	11	1.9
	MS	2	4	5	4	1.7
	HS	3	12	9	4	1.5
	Total #	10	19	18	19	1.7
	Total %	15%	29%	27%	29%	
10. The classroom climate is characterized by respectful behavior, routines, tone, and discourse.	ES	0	4	2	17	2.6
	MS	0	0	4	11	2.7
	HS	0	5	12	11	2.2
	Total #	0	9	18	39	2.5
	Total %	0%	14%	27%	59%	
11. The teacher conducts appropriate formative assessments to check for understanding and provide feedback to students.	ES	3	6	6	8	1.8
	MS	3	3	4	5	1.7
	HS	4	9	13	2	1.5
	Total #	10	18	23	15	1.7
	Total %	15%	27%	35%	23%	
Total Score For Focus Area #3	ES					7.7
	MS					7.0
	HS					6.0
	Total					6.8